

INDIAN OCEAN

MAP-ZINE HIGHLIGHTS:

- Stay updated with the latest places in the news.
- Experience top-quality, visually captivating, region-specific maps.
- Engage with map-based questions on current affairs.
- Gain insights through detailed solutions and explanations.
- Hone your mapping skills with provided practice maps.

This volume includes coverage of important rivers of India and around the world.

This document is personalised for susbscriber G-288375

MAP-ZINE

VOLUME - 2

AUGUST-SEPTEMBER 2024

A map module for UPSC, PCS & Other Competitive Exams

Contents

SECTION - A						
	S.No.	Maps	Page No.			
	1	Travel from India to Russia	001			
	2	Philadelphi Corridor	002			
	3	Red Sea	003			
	4	Yemen	004			
	5	Somalia	005			
24)	6	Cape of Good Hope	006			
R 20;	7	Africa Global Health Emergency	007			
PLACES IN NEWS (AUGUST-SEPTEMBER 2024)	8	Sri Lanka	800			
PTE	9	The Amazon River	009			
T-SE	10	The Amazon rainforest	010			
JGUS	11	Iran	011			
S (AL	12	Iraq	012			
IEW.	13	Clarion-Clipperton Zone (CCZ)	013			
Z	14	Kuril Islands	014			
ACES	15	Taiwan Strait	015			
PL	16	Brunei	016			
	17	The Great Barrier Reef	017			
	18	Lithium Triangle	018			
	19	Panama Canal	019			
	20	Baltic States	020			
	21	Karowe Diamond Mine, Botswana	021			
	22	Line of Actual Control (LAC)	022			

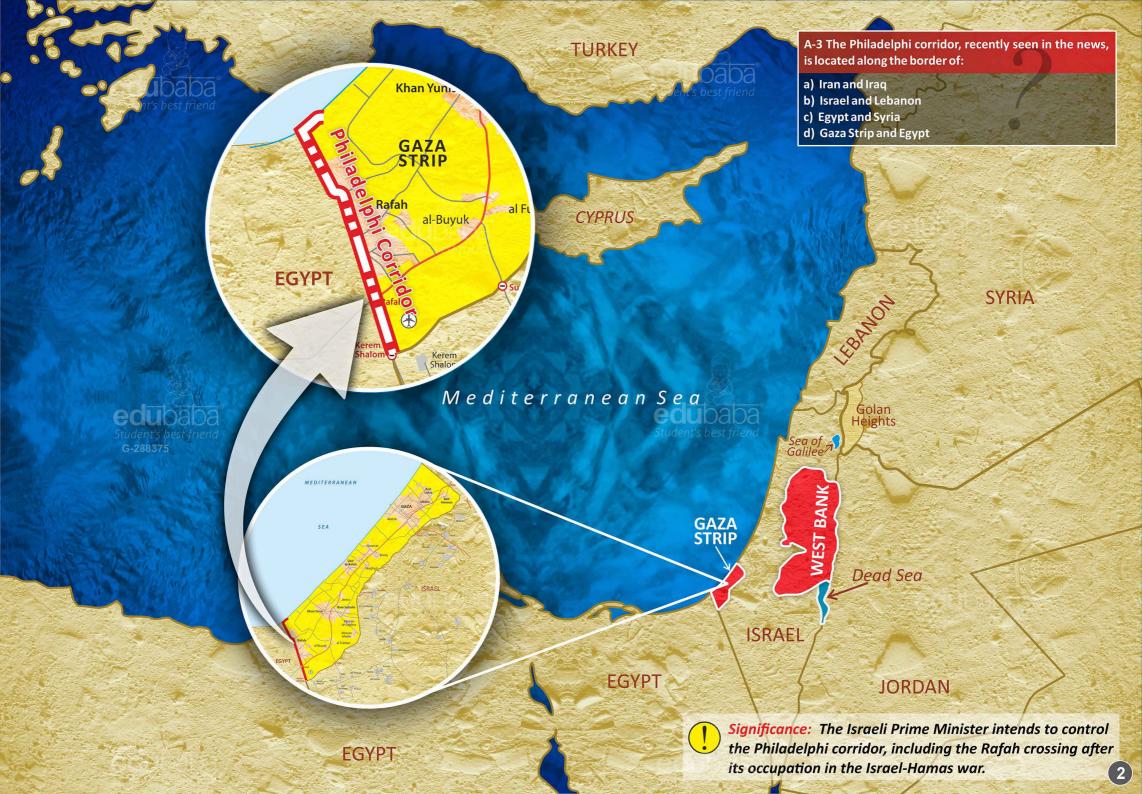
SECTION - B							
	S.No.	Maps	Page No.				
	23	Ganga River System	023				
	24	Ganga River System	024				
	25	Ganga River System	025				
	26	Ganga River System	026				
	27	Ganga River System	027				
	28	Indus River System	028				
	29	Indus River System	029				
DIA	30	Indus River System	030				
JF IN	31	Indus River System	031				
IMPORTANT RIVERS OF INDIA	32	Brahmaputra River System	032				
	33	Brahmaputra River System	033				
ANT	34	Brahmaputra River System	034				
ORT/	35	Brahmaputra River System	035				
M	36	Yamuna River System	036				
	37	Yamuna River System	037				
	38	Yamuna River System	038				
	39	Narmada River	039				
	40	Tapi River	040				
	41	Mahi River	041				
	42	Sabarmati River	042				
	43	Mahanadi River System	043				
	44	Mahanadi River System	044				

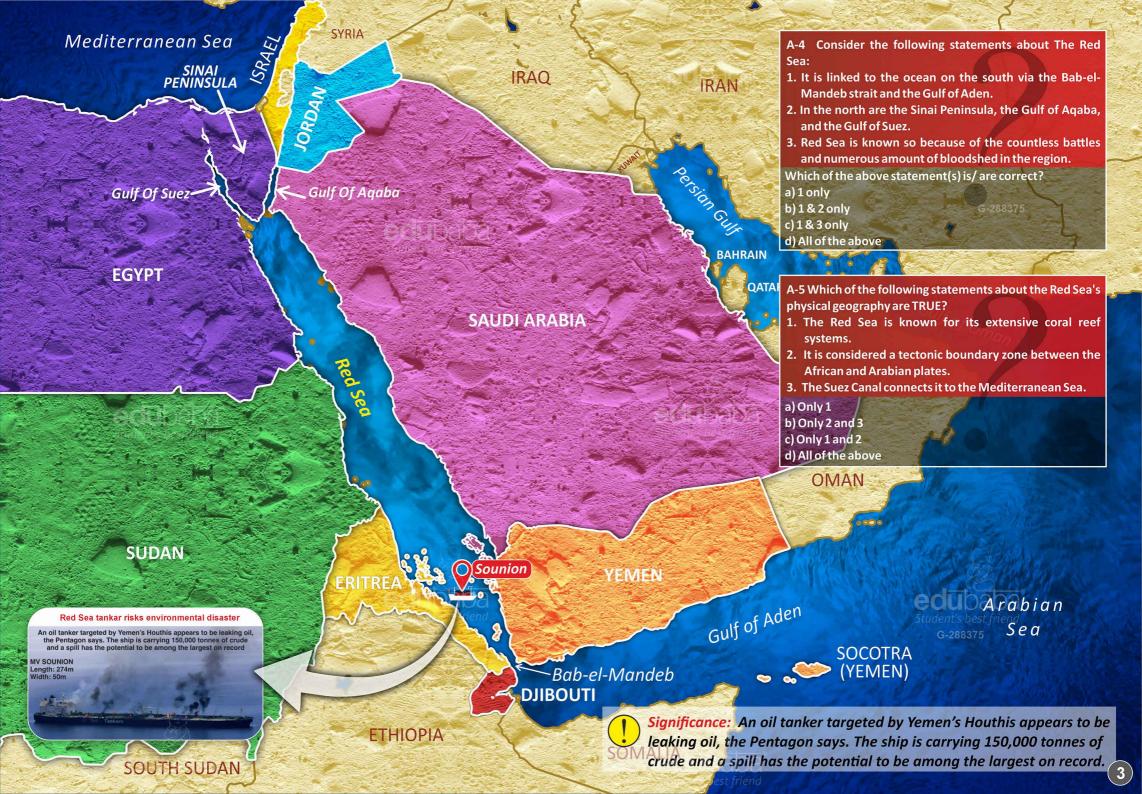
Contents

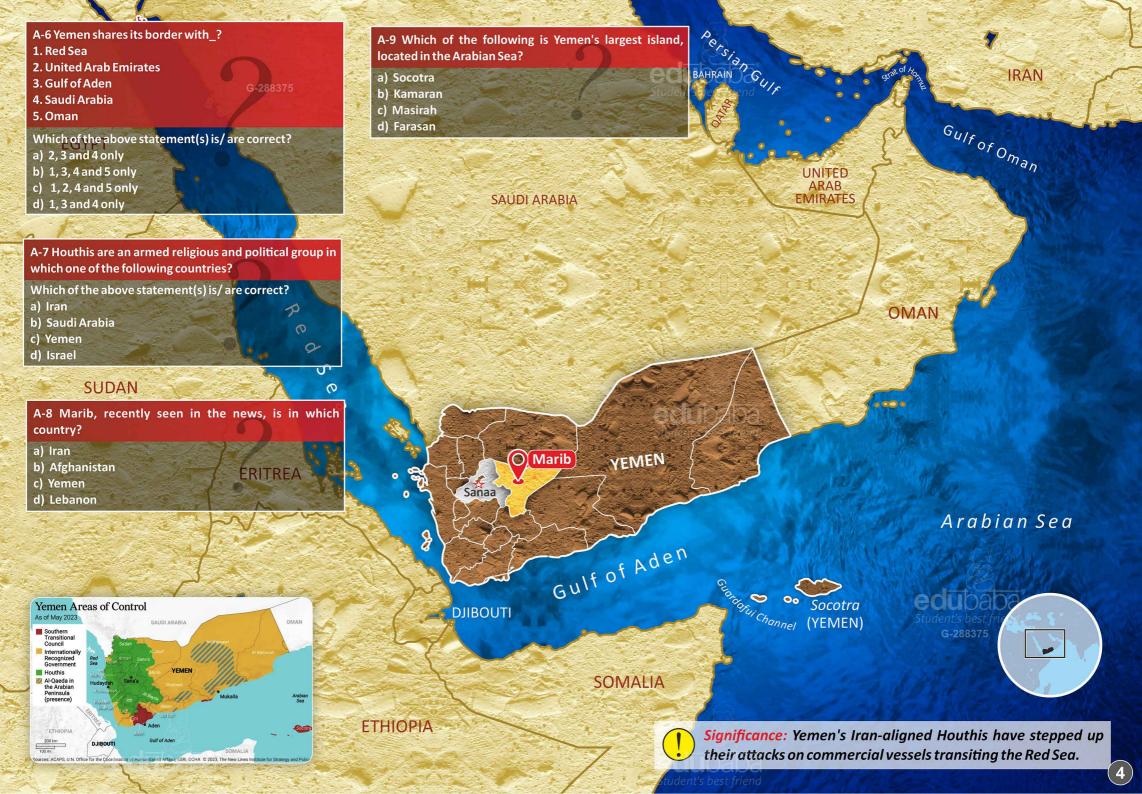
SECTION - B					
IMPORTANT RIVERS OF INDIA	S.No.	Maps	Page No.		
	45	Godavari River System	045		
	46	Godavari River System	046		
	47	Godavari River System	047		
	48	Godavari River System	048		
	49	Godavari River System	049		
	50	Krishna River System	050		
- RIV	51	Krishna River System	051		
IANT	52	Krishna River System	052		
PORT	53	Krishna River System	053		
Ξ	54	Krishna - Godavari River System	054		
	55	Kaveri River System	055		
	56	Kaveri River System	056		
	57	Kaveri River System	057		
	58	R. Pennar, R. Ponnaiyar, R. Vaigai	058		
	59	Amazon River	059		
RLD	60	Nile River	060		
MO	61	Volga River	061		
RIVERS OF THE WORLD	62	Danube River	062		
	63	Rhine River	063		
	64	Mississippi River	064		
	65	Mekong River	065		
	66	Tigris–Euphrates river	066		

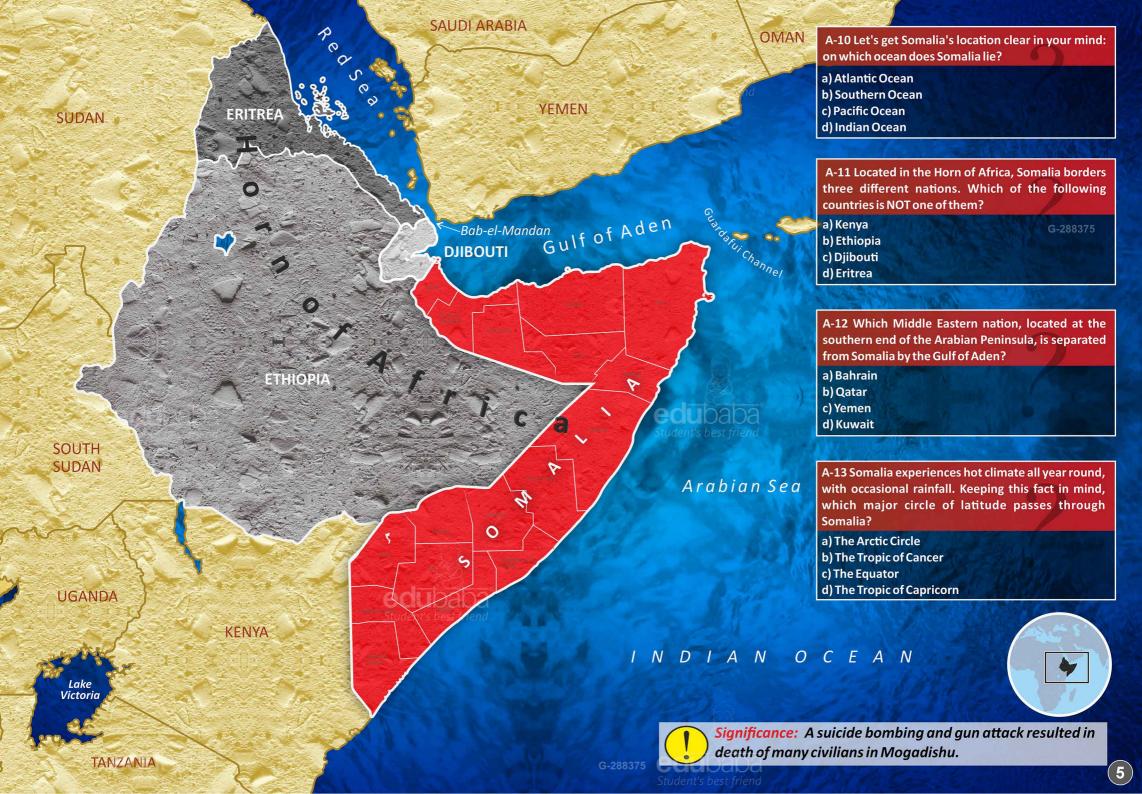
SECTION - B						
RIVERS OF THE WORLD	S.No.	Maps	Page No.			
	67	Murray River	067			
	68	Po River	068			
	69	Rhine River	069			
	70	Dnieper River	070			
	71	Rhône River	071			
	72	Dnieper River	072			
	73	Nile River	073			
		SOLUTIONS & EXPLANATIONS				
		PRACTICE MAPS				













WHO Declares Mpox Global Health Emergency

The World Health Organization has declared the Mpox outbreak in Africa a public health emergency of international concern, with scientists worried about the rapid spread of a new variant

WHAT IS MPOX?

- Highly contagious disease formerly called monkeypox- transmitted through close contact, such as sex, skin-to-skin contact and close breathing.
- Causes flu-like symptoms and skin lesions, and can be fatal, with four in 100 cases leading to death.
- Africa CDC says it needs 10 million vacçines, but only 200,000 are available

MPOX Cases

- Total of 14,250 cases and 456 deaths reported between start of 2024 and end of July 160% increase in infections compared with same period in 2023
- D.R.Congo alone accounts for 96.3% of all cases and 97% of all deaths
- Outbreak in Congo began with spread of endemic strain, known as **Clade 1**. But new variant, **Clade 1b**, appears to Africa spread more easily

A-15 With reference to Monkeypox consider the following statements:

- 1. It is a viral zoonotic disease.
- 2. Monkeys are the only natural host of this virus.
- 3. Infected people break out in a rash that looks a lot like chickenpox.

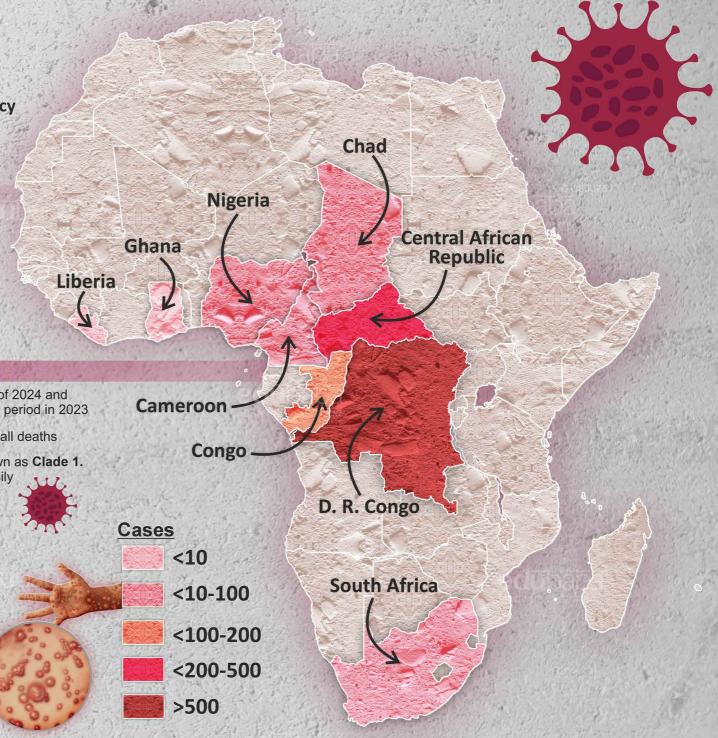
Select the correct statements

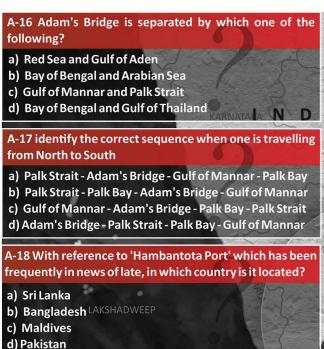
a) 1 & 2 only

b) 2 & 3 only

c) 1& 3 only

d) All of the above





country in 1974?

a) Sri Lanka

b) Maldives

c) Indonesia



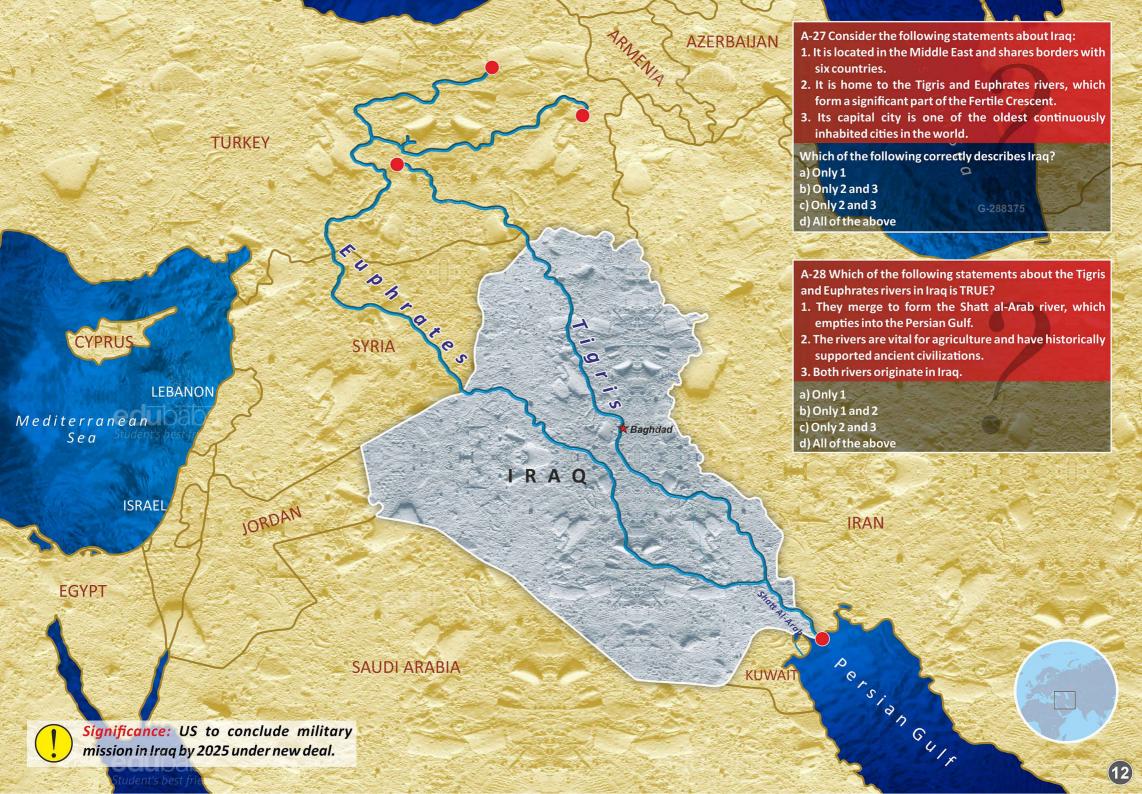


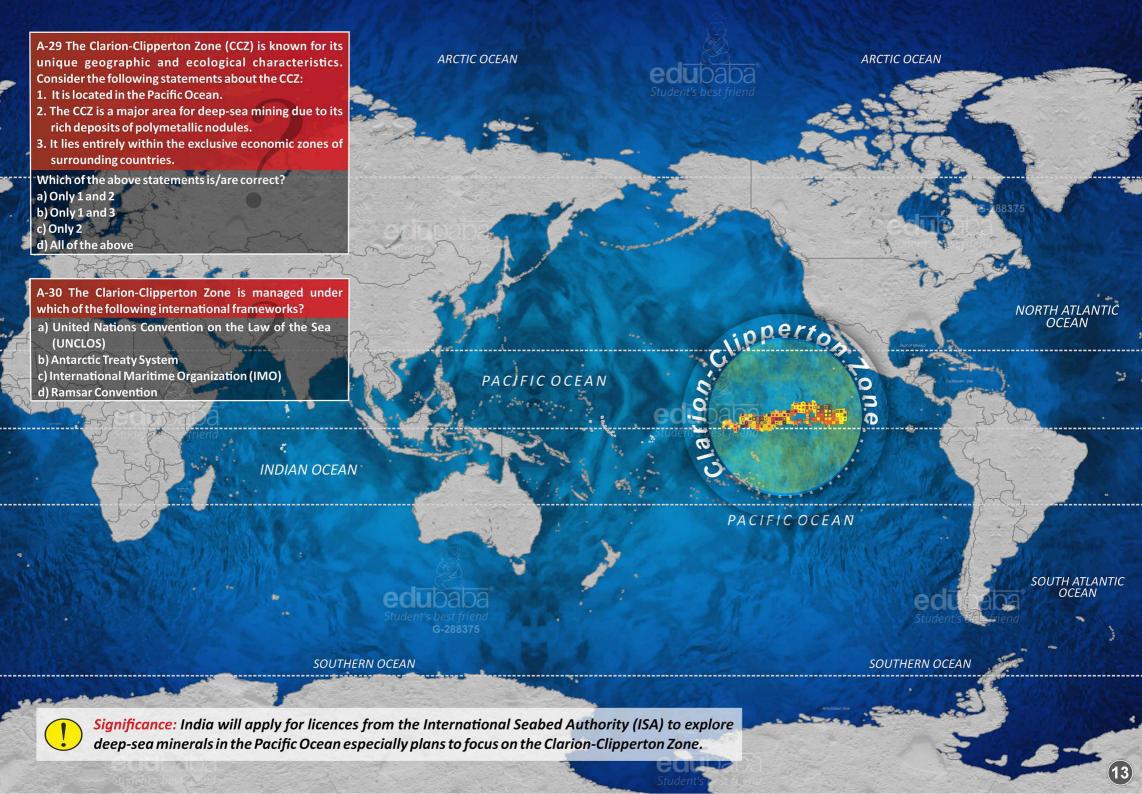


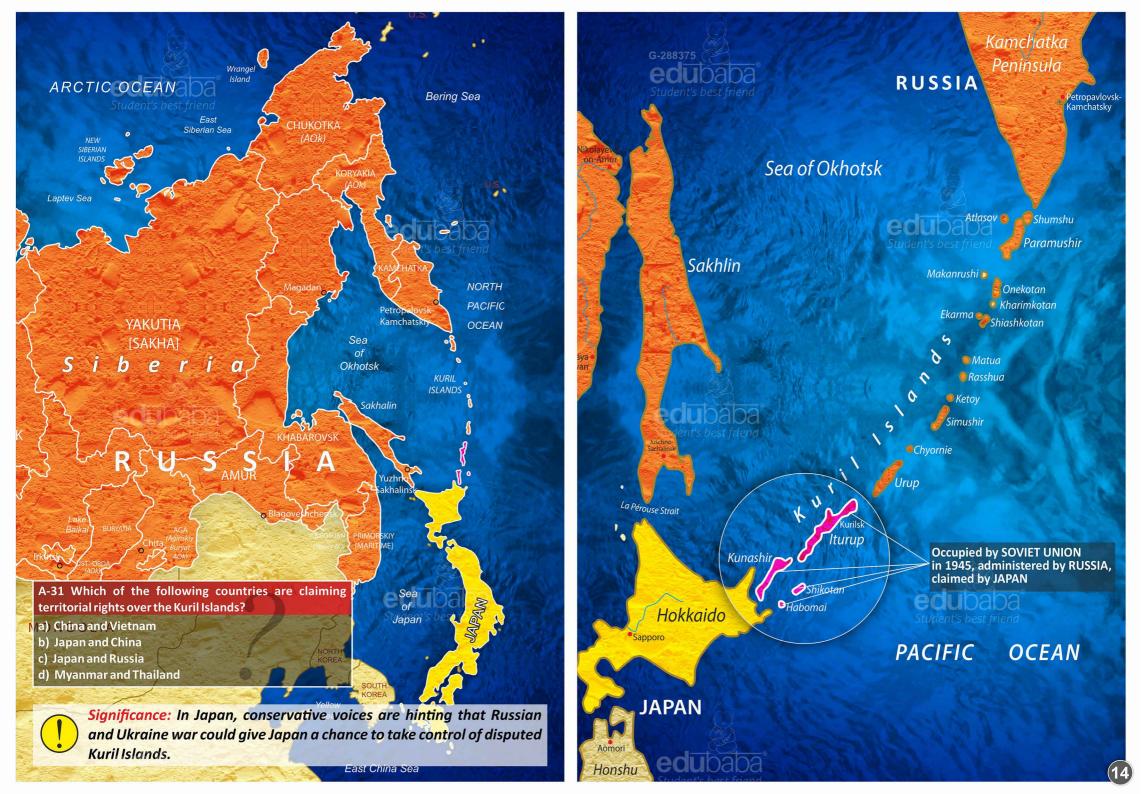


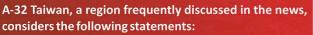












- 1. It is an island nation separated from mainland China by the Luzon Strait.
- 2. Taiwan is separated from the Philippines by the Taiwan Strait.
- 3. Taiwan is a member of the United Nations (UN).
- 4. Taiwan is the largest island in the world.

How many of the above-mentioned statements are NOT true?

- a) Only one
- b) Only two
- c) Only three
- d) All of the above

A-33 Taiwan is a global leader in the technology sector. Which of the following statements about its economic geography is TRUE?

- 1. Taiwan is one of the largest exporters of semiconductors.
- 2. The Hsinchu Science Park is a major hub for technology companies.
- 3. Taiwan's economy heavily relies on agriculture.

Options:

- a) Only 1 and 2
- b) Only 1 and 3
- c) All of the above
- d) None of the above

A-34 The Formosa Strait, recently seen in the news, connects:

- a) Sea of Japan and Yellow Sea
- b) Sea of Okhotsk and Sea of Japan
- c) Black Sea and Sea of Marmara
- Gd) South China Sea and East China Sea



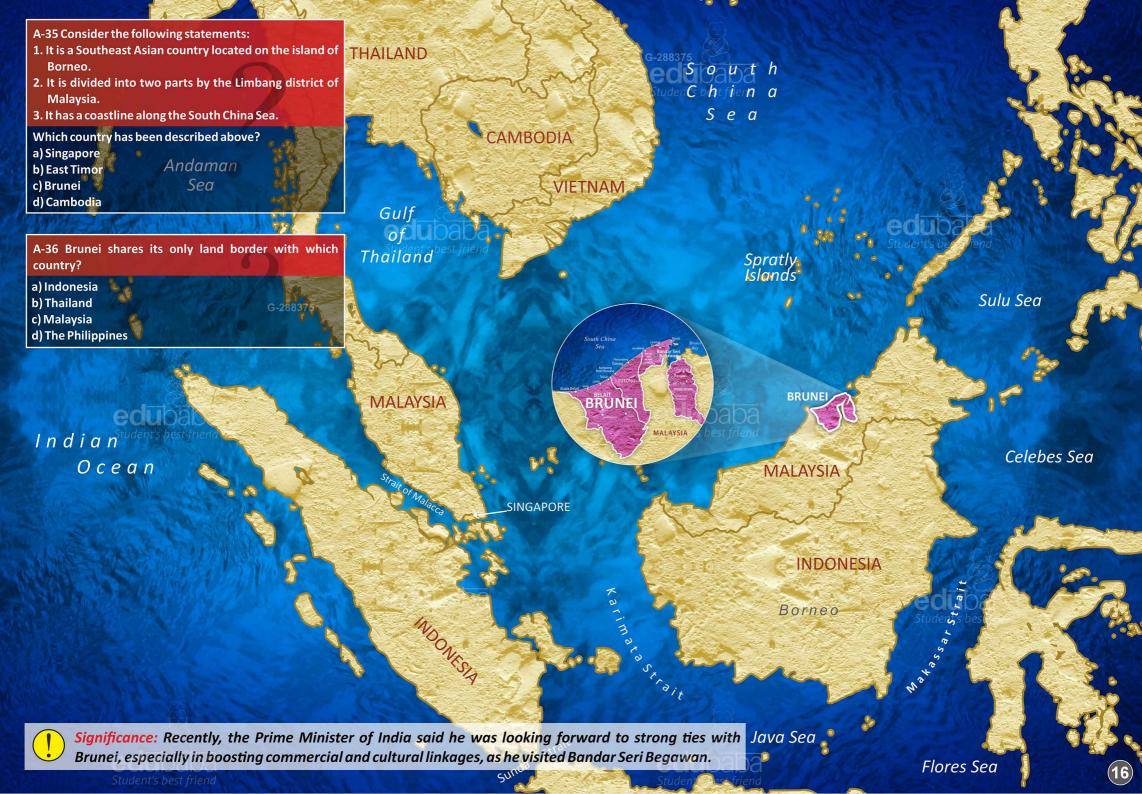
South

China

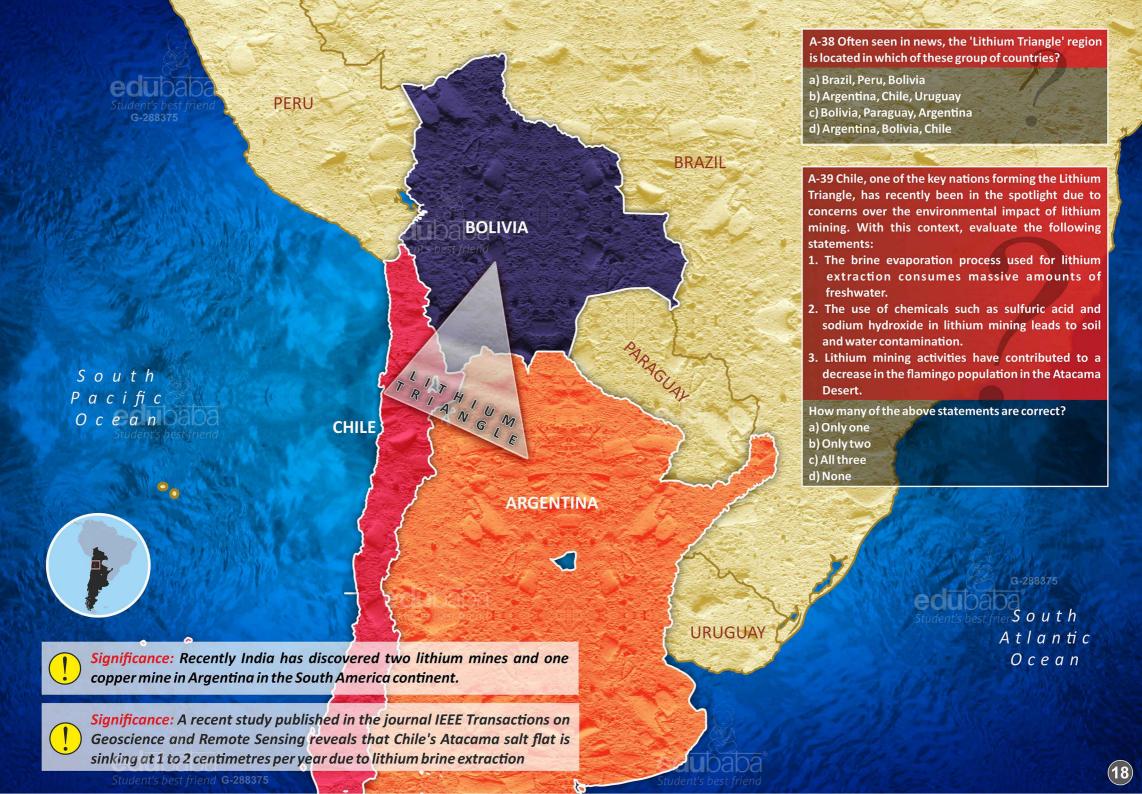
PHILIPPINES



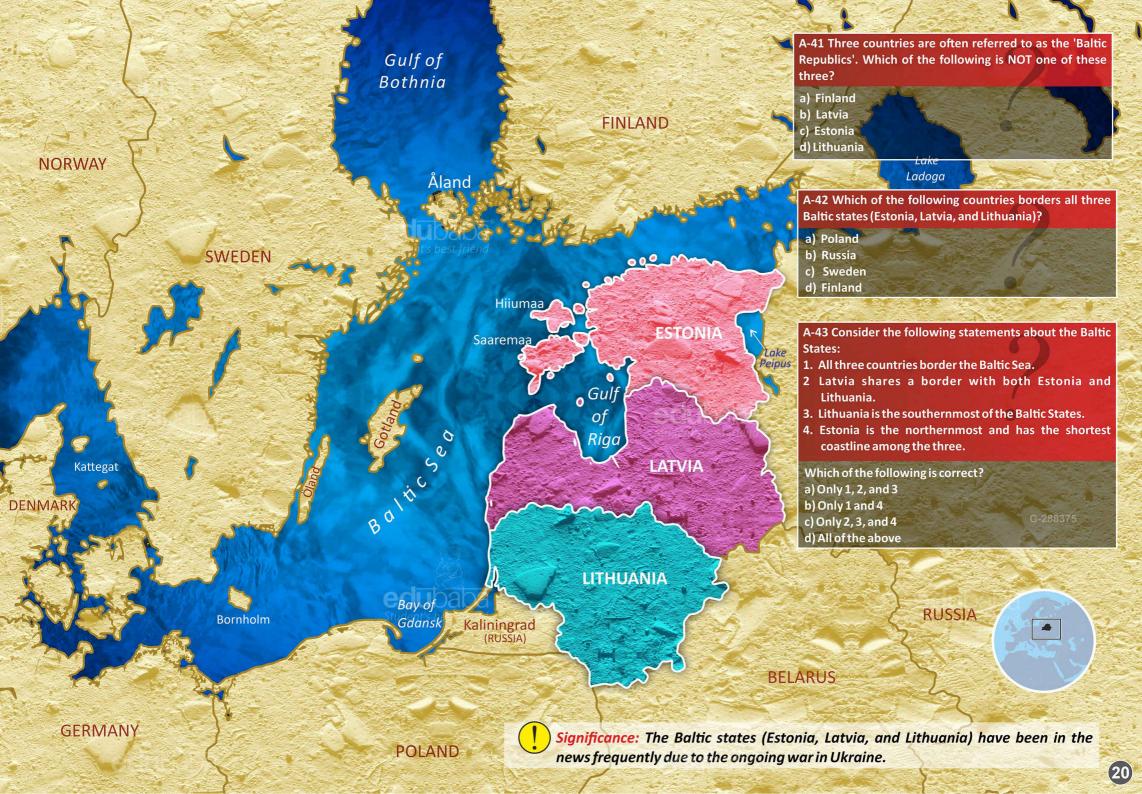
Significance: A Japanese warship cruised for the first time to assert its freedom of navigation through the Taiwan Strait.























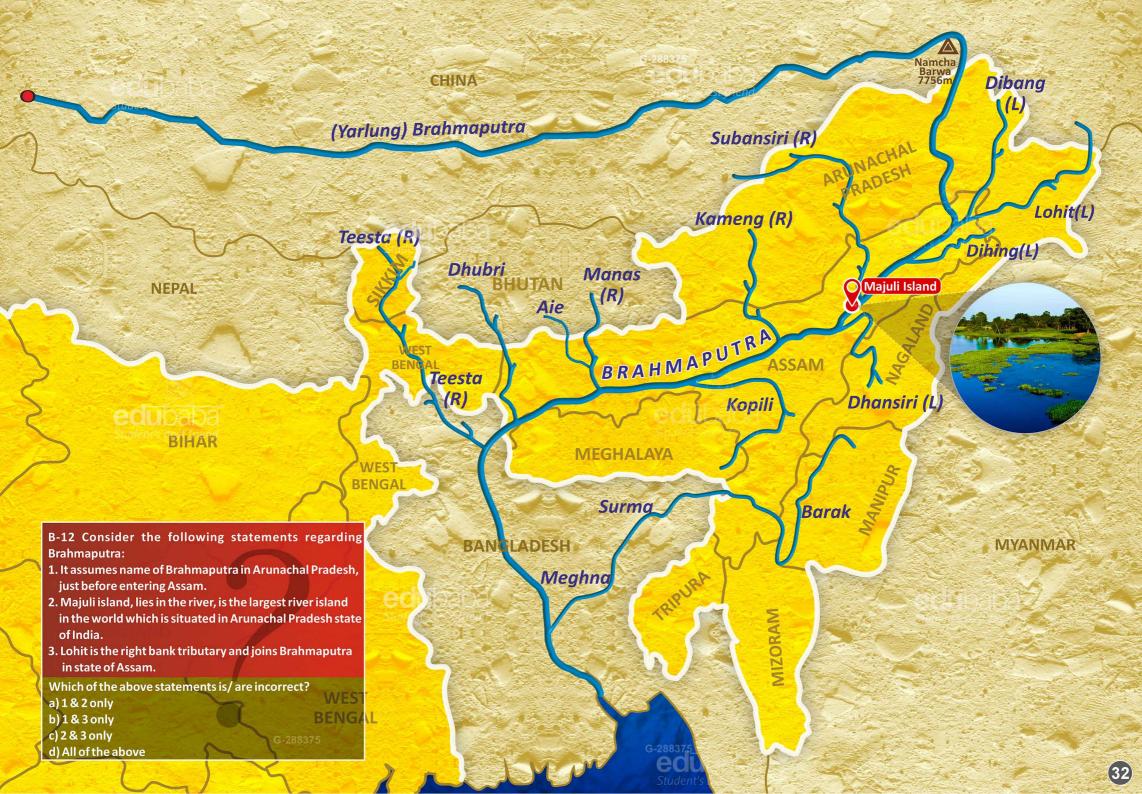


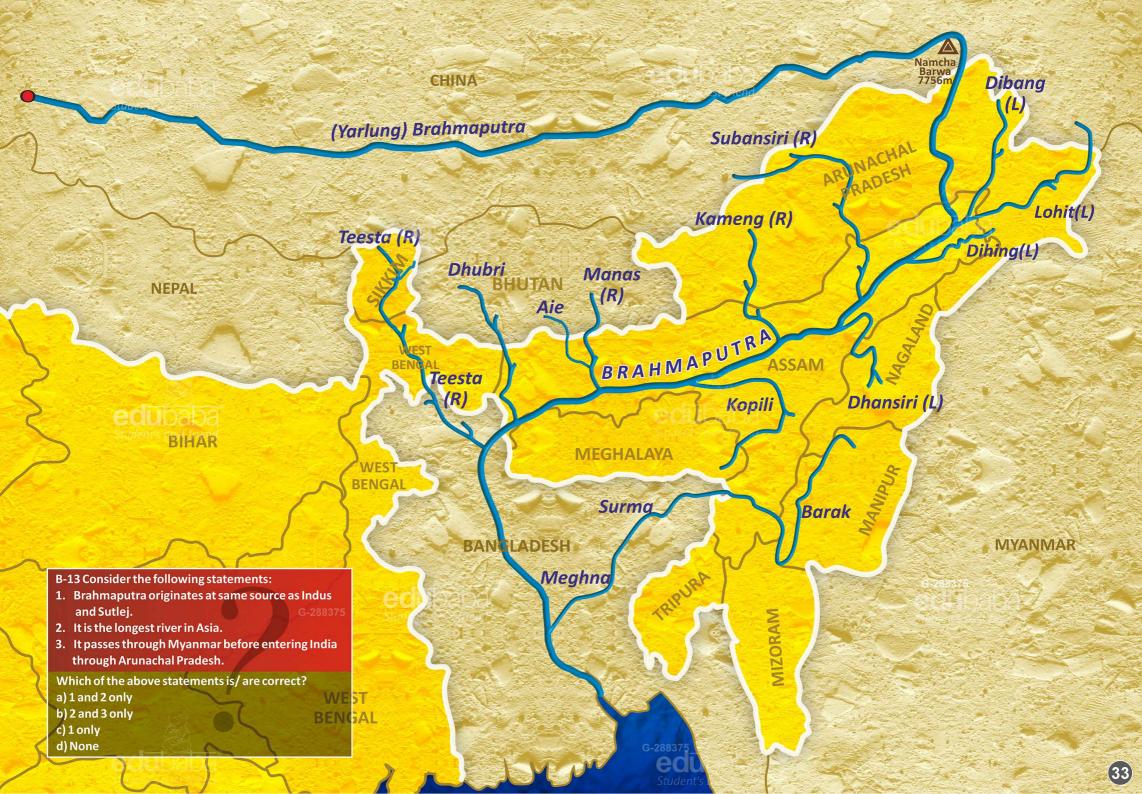


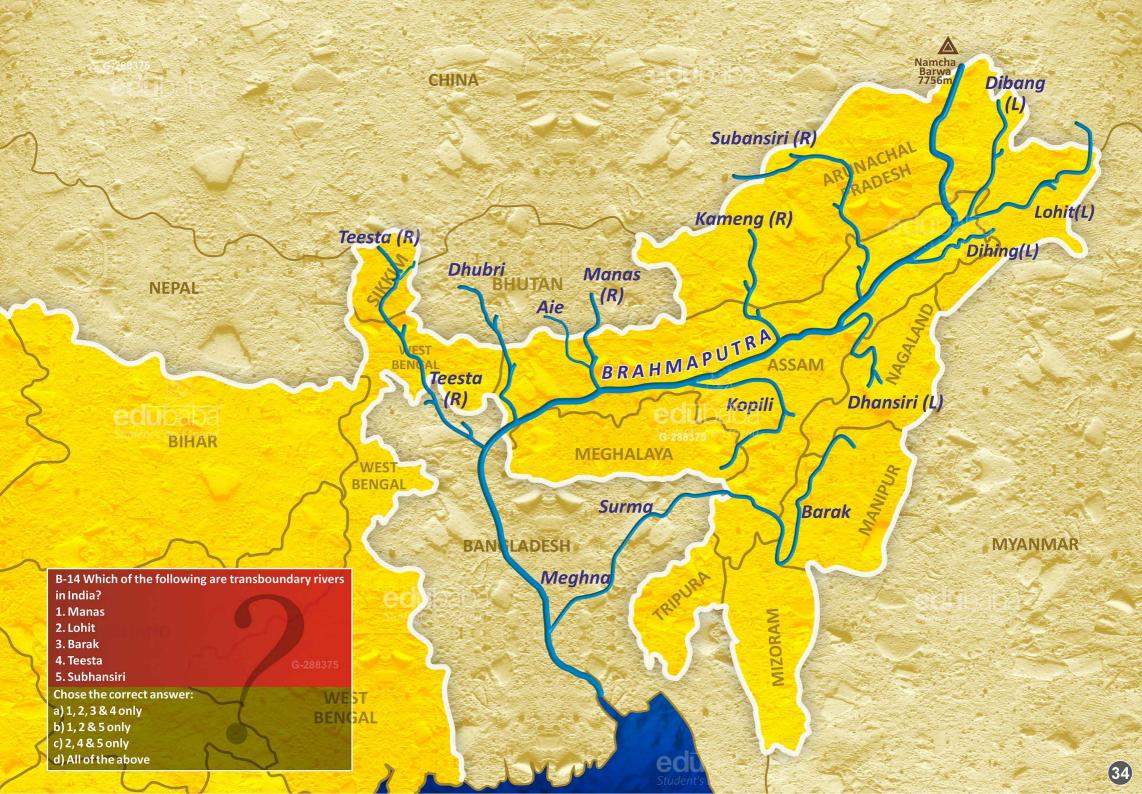


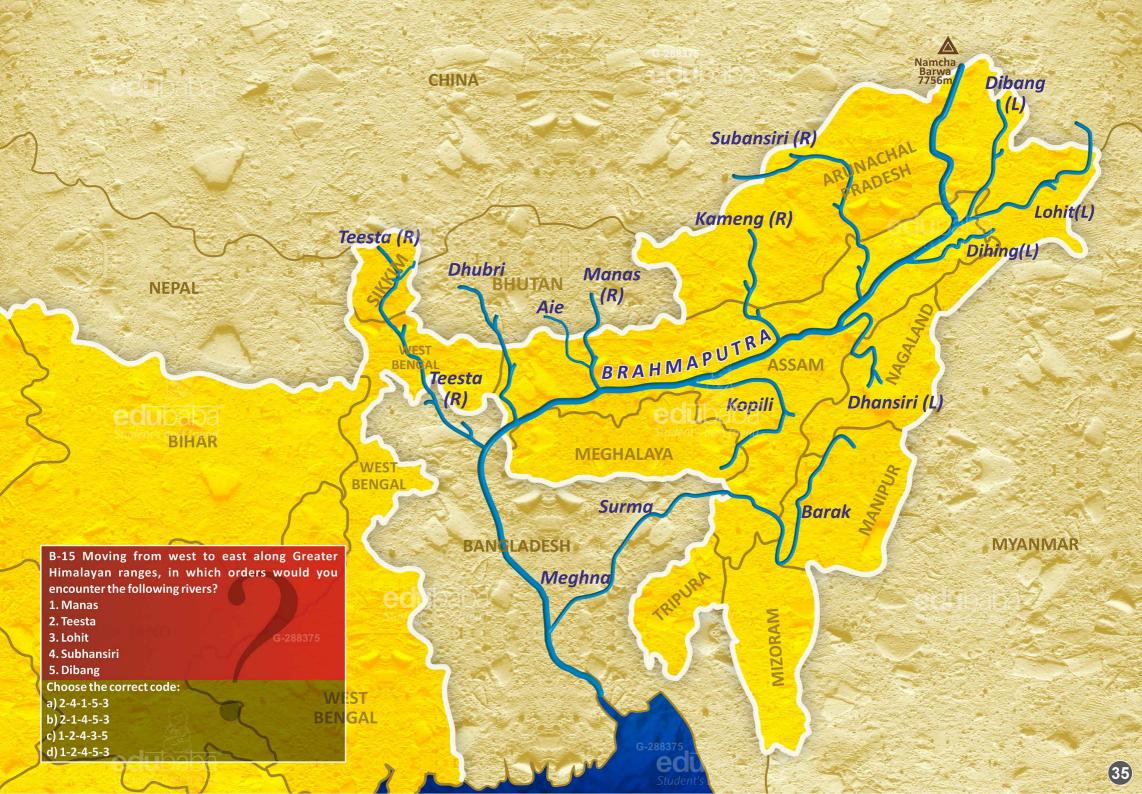












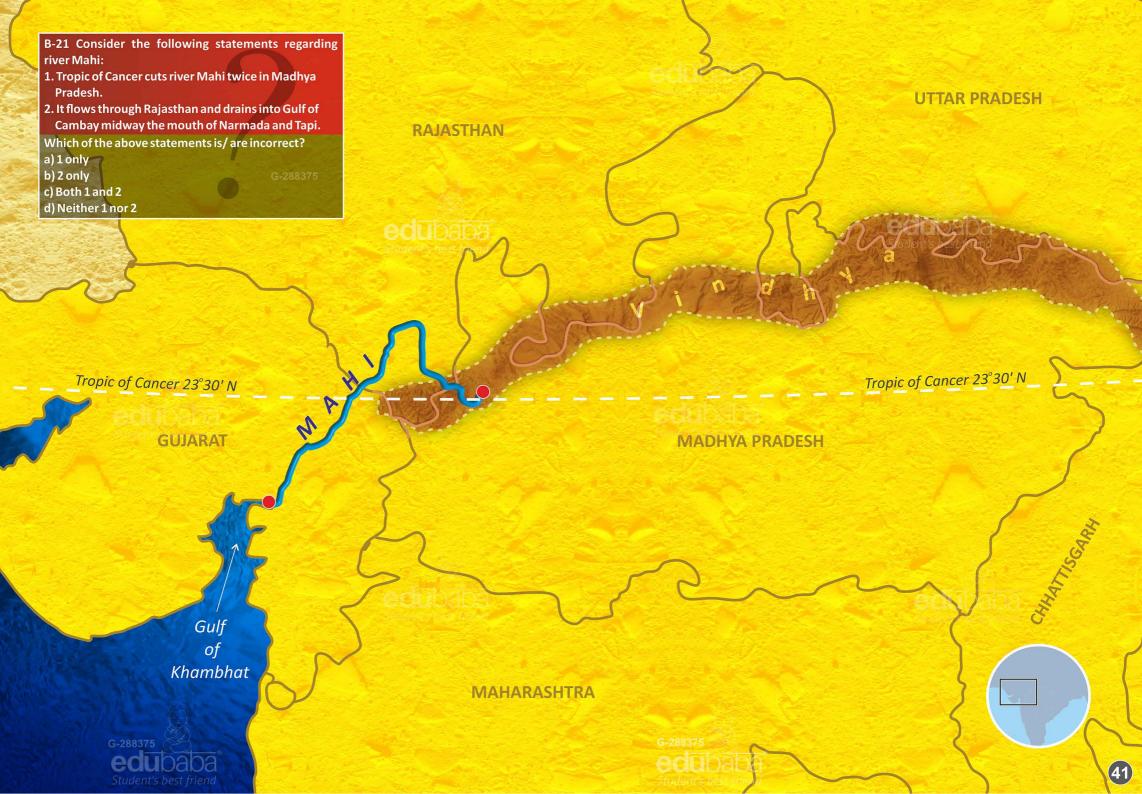




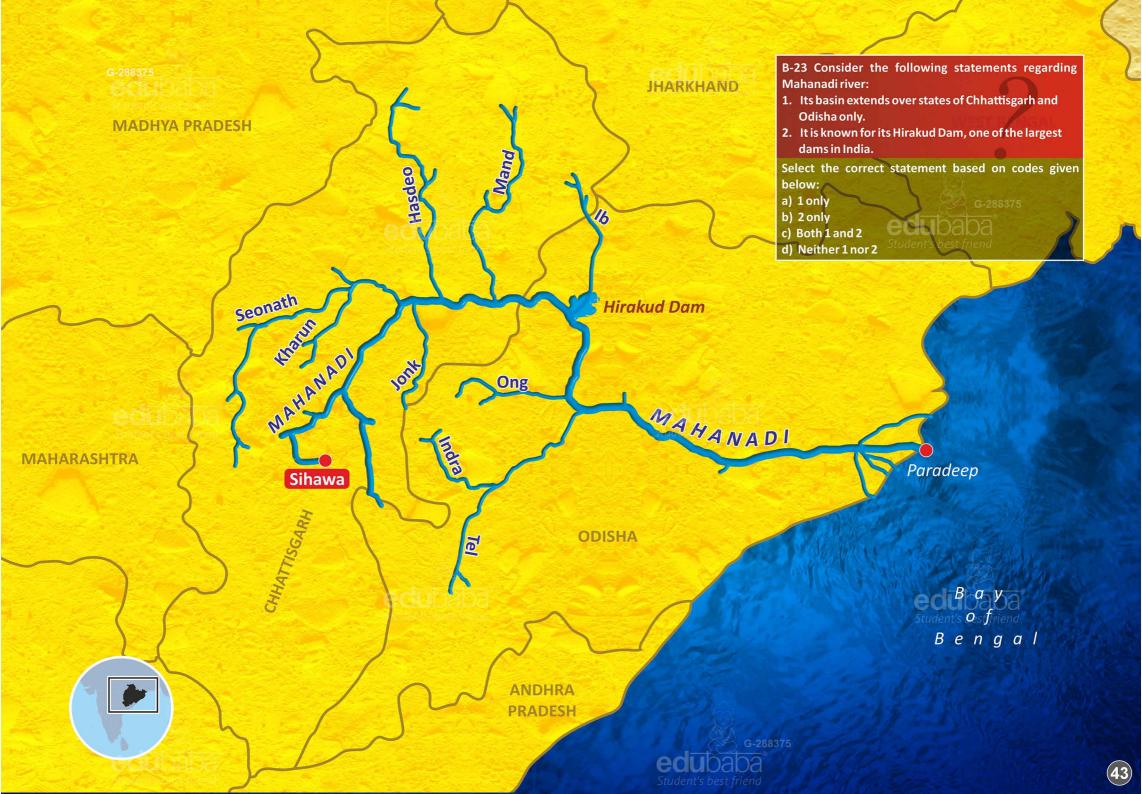






























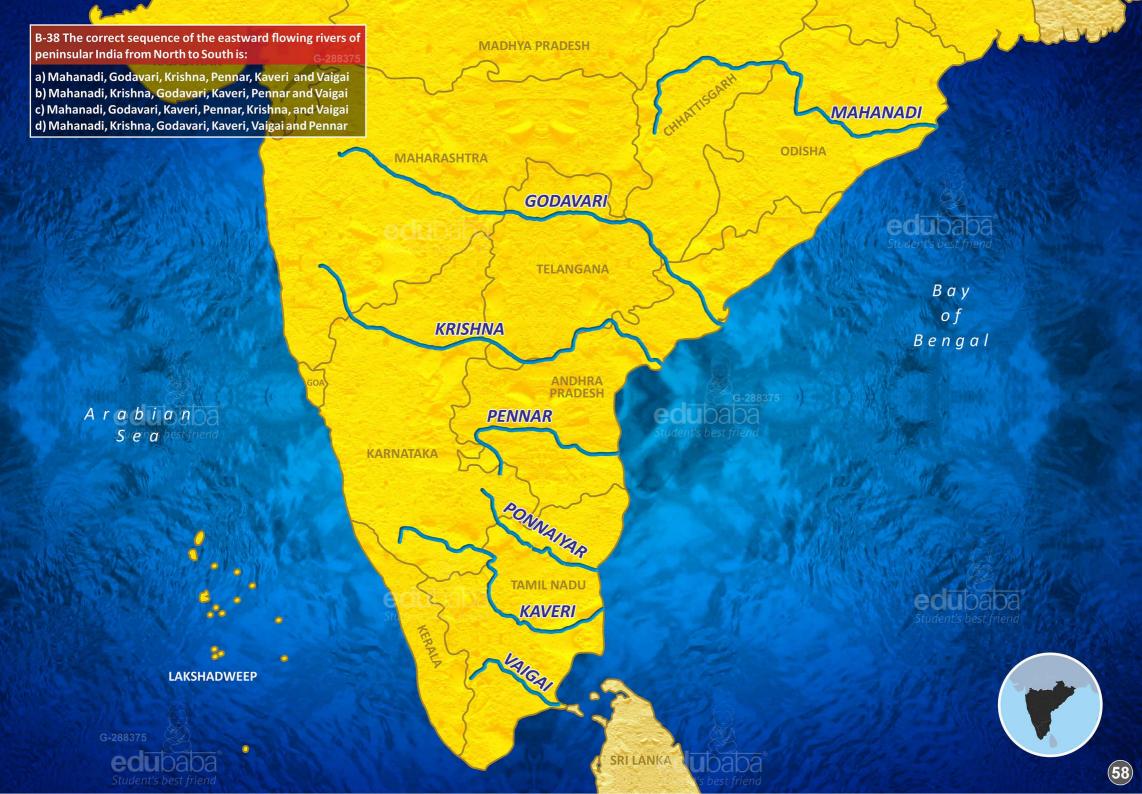












































A-1 The Correct Answer is: b) 3

Explanation: - The minimum number of countries an Indian citizen needs to pass through to travel from India to Russia via a land route through the Middle East, excluding India and Russia, is three. (Pakistan → Iran → Azerbaijan)

A-2 The Correct Answer is: a) 1

Explanation: - The minimum number of countries a traveler needs to pass through (excluding Saudi Arabia and Turkey) is 1 (Iraq).

A-3 The Correct Answer is: d) Gaza Strip and Egypt

Explanation: - The Philadelphi corridor is a ribbon of land about 14 km in length and 100 metres wide along Gaza's border with Egypt.

- It was designated as a demilitarised border zone after the withdrawal of Israeli settlements and troops from Gaza in 2005 and runs from the Mediterranean to the Kerem Shalom crossing with Israel.
- The Corridor was originally established under the 1979 Israel-Egypt peace treaty as a 100-meter-wide buffer zone.
- The zone was later expanded beginning during the Second Intifada to be several hundred meters wide. It covers the entire 8.7-mile-long border.
- The Rafah crossing between Egypt and Gaza is within the Philadelphi Corridor.
- In 2005, as part of Israel's unilateral withdrawal from Gaza, Egypt and Israel signed an agreement by which Egypt would secure the border between Egypt and Gaza to prevent the smuggling of weapons into the Strip.
- Egypt maintains a one-kilometer-wide buffer zone on its side of the border, with plans to expand it.

Significance: The Israeli Prime Minister intends to control the Philadelphi corridor, including the Rafah crossing after its occupation in the Israel-Hamas war.

A-4 The Correct Answer is: b) 1 & 2 only

Explanation: The Red Sea is an inlet of the Indian Ocean located between Africa and Asia. The connection to the ocean is in the south through the Bab-el-Mandeb and the Gulf of Aden.

- In the north are the Sinai Peninsula, the Gulf of Aqaba, and the Gulf of Suez (leading to the Suez Canal). The countries bordering the Red Sea are given by: DESSEY (Djibouti, Egypt, Saudi Arabia, Sudan, Eritrea, and Yemen).
- The **Red Sea** is known so because of the occasional death of the extensive population of the **algae Trichodesmium erythraeum** which turns the sea into a **reddish-brown** colour.
- The Red Sea may be geographically divided into three sections: the Red Sea proper, and in the north, the Gulf of Aqaba and the Gulf of Suez.
- The six countries bordering the Red Sea proper are: Eastern shore: Saudi Arabia, Yemen & Western shore: Egypt, Sudan, Eritrea, Djibouti.
- The Gulf of Suez is entirely bordered by Egypt. The Gulf of Aqaba borders Egypt, Israel, Jordan and Saudi Arabia.
- In addition to the standard geographical definition of the six countries bordering the Red Sea cited above, areas such as Somalia are sometimes also described as Red Sea territories. This is primarily due to their proximity to and geological similarities with the nations facing the Red Sea and/or political ties with said areas.

Significance: An oil tanker targeted by Yemen's Houthis appears to be leaking oil, the Pentagon says. The ship is carrying 150,000 tonnes of crude and a spill has the potential to be among the largest on record.



- The Greek-flagged tanker Sounion, carrying 150,000 tonnes or one million barrels of crude oil, was hit last week by missiles launched by the Iran-backed Houthis.
- A large-scale oil leak would represent the first serious environmental damage as a result of the campaign waged by the Houthis against international shipping in the Red Sea since November.
- The Yemeni Islamist group claims to be acting in solidarity with Palestinians in Gaza following Israel's war in the enclave in response to Hamas's deadly attack on the Jewish state on October 7.

A-5 The Correct Answer is: d) All of the above

Explanation: The Red Sea is home to extensive coral reefs, some of which are among the most biodiverse in the world.

- It is a tectonic boundary zone formed by the rift between the African and Arabian plates.
- It is connected to the Mediterranean Sea via the Suez Canal.

A-6 The Correct Answer is: b) 1, 3, 4 and 5 only

Explanation: - Yemen, officially the Republic of Yemen, is a country in West Asia.

- It is located in the southern end of the Arabian Peninsula, bordering Saudi Arabia to the north and Oman to the northeast.
- To the south is the Guardafui Channel and Gulf of Aden, and to the west is the Red Sea.
- It shares maritime borders with Eritrea, Djibouti and Somalia.
- Yemen owns the island of Socotra (217 miles) to the south off the coast of East Africa.
- Yemen's capital city is Sana'a.

Significance: Yemen's Iran-aligned Houthis have stepped up their attacks on commercial vessels transiting the Red Sea.

A-7 The Correct Answer is: c) Yemen

Explanation: - The Houthis, officially known as Ansar Allah (Partisans of God), are an armed religious and political movement in Yemen.

- Houthis are Zaydi Shiites, or Zaydiyyah. Shiite Muslims are the minority community in the Islamic world, and Zaydis are a minority of Shiites, significantly different in doctrine and beliefs from the Shiites who dominate in Iran, Iraq, and elsewhere.
- They are a **minority in Yemen**, which is **predominantly Sunni Muslim**, but they are a significant one, numbering in the hundreds of thousands and making up as much as a third of the overall population.
- Its members advocate regional autonomy for Zaidis in northern Yemen.
- They have been fighting Yemen's Sunni-majority government since 2004.
- The Houthis took over the Yemeni capital Sanaa in September 2014 and seized control over much of north Yemen by 2016.
- The Houthi movement began as an effort to maintain tribal autonomy in northern Yemen and protest Western influence in the Middle East.
- Today, the Houthis seek a greater role in the Yemeni government and continue to advocate for Zaidi minority interests.
- The movement is known for its virulently anti-American and anti-Semitic rhetoric.
- Several of the group's leaders have been designated as terrorists by the United States.



A-8 The Correct Answer is: c) Yemen

A-9 The Correct Answer is: a) Socotra

Explanation: - Socotra is the largest island in the Socotra Archipelago, located in the Arabian Sea.

- It is renowned for its unique biodiversity, with many endemic plant and animal species.
- Kamaran is a Yemeni island in the Red Sea, and Masirah and Farasan belong to Oman and Saudi Arabia, respectively.

A-10 The Correct Answer is: d) Indian Ocean

Explanation: Somalia is located on the east side of Africa in the Indian Ocean. It is also bordered to the north by the Gulf of Aden. It is strategically located so that it is a gateway to the Red Sea and the Suez Canal. It was an important part of the ancient "Silk Road", and allowed for trade between India, the Far East, North Africa, and all countries around the Mediterranean Sea.

Significance: A suicide bombing and gun attack resulted in death of many civilians in Mogadishu

A-11 The Correct Answer is: d) Eritrea

Explanation: Somalia borders Djibouti to the northwest, Ethiopia to the west, and Kenya to the southwest. The countries located in the Horn of Africa include Djibouti, Eritrea, Ethiopia, and Somalia. However, Eritrea does not share a land border with Somalia.

A-12 The Correct Answer is: c) Yemen

Explanation: The Gulf of Aden is also known as the Gulf of Berbera. The Middle Eastern country of Yemen is located to the north of Somalia. Yemen shares a maritime border with Somalia.

• Located in the southern Arabian Peninsula, it borders Saudi Arabia to the north, Oman to the northeast, and the Indian Ocean to the south, sharing maritime borders with Eritrea, Djibouti and Somalia across the Horn of Africa.

A-13 The Correct Answer is: c) The Equator

Explanation: The equator passes through 11 countries, which include seven African nations - the Democratic Republic of the Congo (DR Congo), Gabon, Kenya, the Republic of the Congo, São Tomé and Príncipe, Somalia, and Uganda. Specifically, the equator passes through the city of Jamame, which is located in the southern region of Somalia.

A-14 The Correct Answer is: b) Only 1 and 3

Explanation: The Cape of Good Hope is indeed a rocky headland on the Atlantic coast of South Africa.

- A common misconception is that the Cape of Good Hope is the southern tip of Africa. However, the southern most point of Africa is Cape Agulhas, not the Cape of Good Hope.
- When following the western side of the African coastline from the equator, however, the Cape of Good Hope marks the point where a ship begins to travel more eastward than southward
- Cape Agulhas is a rocky headland in Western Cape, South Africa. It is the geographic southern tip of the African continent and the beginning of the dividing line between the Atlantic and Indian Oceans.
- Portuguese explorer Bartolomeu Dias was the first European to round the Cape in 1488 during his expedition to find a sea route to Asia.



Significance: India's Fuel Exports to Europe Shifted from Suez Canal to Cape of Good Hope.

- Before the Red Sea security crisis, India's fuel exports to Europe depended almost entirely on the Red Sea-Suez Canal route.
- India emerged as a major fuel supplier to Europe after the Russia-Ukraine conflict and the follow-up Western countries' sanctions on Russia.
- The Suez Canal is the shortest maritime route between Asia and Europe. It usually accounts for about 12-15% of global maritime trade (UNCTAD).

Need for Shifting Route

- Attacks from Houthis: Iran-backed Houthi rebels of Yemen attacking ships around the Bab el-Mandeb strait (choke point), which leads to Red Sea and Suez Canal.
- Israel-Hamas conflict: Growing concerns over the possibility of the Israel-Hamas conflict developing into a wider Middle Eastern crisis.

Consequences of Shifting Route

- Decline in Supply to Europe: India's petroleum fuel exports to Europe in recent months have edged lower.
- Shipping time for trade via Cape of Good Hope is around 2 weeks more and it also raises container freight rates by over 30%.
- **Diversification of Export Destination:** India's overall fuel exports are stable with increased dispatches to Asian markets and Australia offsetting the decline in supplies to Europe.

A-15 The Correct Answer is: c) 1 & 3

Explanation: - Monkeypox Virus: It is a viral zoonotic disease (transmission from animals to humans) and is identified as a pox-like disease among monkeys. Hence it is named Monkeypox. It is endemic to Nigeria.

- It is caused by the monkeypox virus, a member of the Orthopoxvirus genus in the family Poxviridae.
- The natural host of the virus remains undefined. But the disease has been reported in many animals.
- Animals known to be sources of the Monkeypox virus include monkeys and apes, a variety of rodents (including rats, mice, squirrels and prairie dogs) and rabbits.
- Monkeypox infected people break out in a rash that looks a lot like chickenpox. But the fever, malaise, and headache from Monkeypox are usually more severe than in chickenpox infection.
- In the early stage of the disease, Monkeypox can be distinguished from smallpox because the **lymph gland** gets enlarged.

Why in news?

- The WHO has declared monkeypox a public health emergency of international concern, with the Democratic Republic of the Congo and other African countries being severely affected.
- Since 2022, there have been 99,176 cases and 208 deaths reported from 116 countries. What seems to be worrisome is the spread of a new sexually transmissible strain of the virus.

What does declaration as a PHEIC mean?

- A PHEIC is declared for an extraordinary event which is determined to constitute a public health risk to other States through the international spread of disease.
- PHEIC label by WHO is designed to trigger a coordinated international response and could unlock funding to collaborate on sharing vaccines and treatments.



A-16 The Correct Answer is: c) Gulf of Mannar and Palk Strait

Explanation: The Adam's Bridge, also known as the Ram Sethu Bridge, connects Rameswaram Island, off the southeast coast of India, to Mannar Island, off the northwest coast of Sri Lanka.

- It separates the Gulf of Mannar (southwest) from the Palk Strait (northeast).
- The bridge is a 48 km long chain of natural limestone shoals.
- Some of the sandbanks are dry and the sea in the area is very shallow, being only 1 to 10 metres deep in places, which hinders navigation.
- Geologic evidence suggests that Adam's Bridge represents a former land connection between India and Sri Lanka.
- · Ram Setu is mentioned in the epic Ramayana, as the bridge constructed by Lord Rama and his vanara (monkey) army.
- The bridge was constructed to cross over to Lanka to rescue Goddess Sita from the clutches of the demon king Ravana.
- In Valmiki's Ramayana, the bridge is described as Sethubanthan.
- As per Islamic legend, Adam used this bridge to reach Adam's Peak in Sri Lanka.
- The Rameshwaram temple records suggest that Adam's bridge was completely above sea level till 1480. It was submerged in the shallow sea due to natural calamities.

Significance: Scientists from the Indian Space Research Organisation (ISRO) have successfully mapped the submerged structure of Adam's Bridge, also known as Ram Setu.

A-17 The Correct Answer is: b) Palk Strait - Palk Bay - Adam's Bridge - Gulf of Mannar

A-18 The Correct Answer is: a) Sri Lanka

Explanation: Hambantota International Port Group is a Public Private Partnership and a Strategic Development Project between the Government of Sri Lanka and China Merchants Port Holdings (CMPort).

- This port was given to China by Sri Lanka on a **99-year lease** after Sri Lanka failed to repay Chinese loans.
- It is seen as a case of Chinese "debt trap" Diplomacy.
- For China, it is an important stop in its Belt and Road Initiative (BRI).
- However, security experts point out that this port fits right into China's 'string of pearls' strategy to surround India in the Indian Ocean.
- Chinese control of this port could harm India's interests in the Indian Ocean by becoming a hub for the People's Liberation Army (PLA) Navy.

Significance: Sri Lanka Awards Energy Deal To India, Scraps Chinese Company's Tender.

• India has long been concerned about growing Chinese influence in the island nation, which sits near key global shipping lanes and which India considers to be within its sphere of influence.

A-19 The Correct Answer is: a) Sri Lanka

Explanation: - Katchatheevu Island lies within the confines of the Palk Strait, situated amidst the territorial waters separating India and Sri Lanka.

- Located northeast of Rameswaram, approximately 33 km from the Indian coast, it sits about 62 km southwest of Jaffna, at the northern tip of Sri Lanka.
- $\bullet \quad \text{Katchatheevu} \ \text{is not suited for permanent human settlement as there} \ \text{is no source} \ \text{of drinking water on the island}.$
- In the year 1974, a pivotal maritime agreement was brokered between India and Sri Lanka, delineating the transfer of Katchatheevu Island's sovereignty to Sri Lanka. This



accord aimed at ameliorating longstanding territorial disputes and addressing issues pertaining to fisheries.

• Despite its diminutive size, approximately 285 acres, Katchatheevu Island has been the focal point of contention, notably among the fishing communities of Tamil Nadu, India. These communities assert historical fishing rights in the waters encompassing the island.

Significance: The Katchatheevu Island has garnered attention for its role in the India-Sri Lanka relationship and the contentious fishing rights issue, showcasing the complexities of

A-20 The Correct Answer is: b) Only two

Explanation: Amazon River: It is the world's largest river by water volume and width. It is the second-longest river in the world after the Nile.

- Course: Its journey begins high in the Andes Mountains. The river then makes its way east through thousands of miles of rainforests and lowlands until it empties into the Atlantic Ocean on the northeastern coast of Brazil.
- Length: 6,400 km
- Width: During the dry season, the width of the Amazon River can be 4 km to 5 km in places and in the wet season, this can increase to 50 km.
- Drainage: It has the largest drainage area of any river system.
- Its watershed spans the countries of Brazil, Peru, Ecuador, Colombia, Venezuela, and Bolivia.
- Roughly two-thirds of the Amazon's main stream and by far the largest portion of its basin are within Brazil.
- Water Discharge: The Amazon releases high amounts of freshwater into the Atlantic Ocean at 300,000 m3 per second.
- It accounts for one-fifth of the total volume of freshwater entering the oceans globally.
- Tributaries: It has more than 1,100 tributaries, of which seventeen measures over 1,500-kilometers long.
- Notable tributaries include the Rio Negro, the Madeira River, and the Xingu River, among many others.
- The Amazon Rainforest, which represents about half of the Earth's remaining rainforest, also constitutes its single largest reserve of biological resources.
- It is sometimes referred to as the "lungs of the Earth" due to its role in regulating the planet's oxygen and carbon cycles.

Significance: Solimoes, one of the main tributaries of the mighty Amazon River, is facing the worst drought on record.

A-21 The Correct Answer is: b) Chile

Explanation: The River Amazon in South America is the largest river by discharge of water in the world, and the second in length. The river originates from the Andes mountains in the Peru. It runs through Ecuador, Venezuela, Bolivia, Brazil, Colombia and Peru. The length of the Amazon River is approximately 6400 kilometres (4000 miles).

• The Amazon River is the second longest river in the world, slightly shorter than the Nile River (4,258 miles or 6,853 km), although some experts contend that the two rivers are so close in length (since measuring methods vary and there is still some dispute over their true sources) that it is difficult to say which river is actually longer.

Significance: Contamination is in the news from rampant informal goldmining in the Amazon basin of Peru and the indigenous people are the worst affected. Why mercury is used in gold mining?

- Mercury is used in gold mining as Gold will dissolve in the mercury while other impurities will not. The mixture of gold and mercury is then heated to a temperature that will vaporize the mercury, leaving behind the gold. The vaporized mercury enters the environment.
- The Peruvian Government continues to prioritize economic development over the protection of the Amazon rainforest.



A-22 The Correct Answer is: b) Only two

Explanation: Statements 1 and 2 are correct. Amazon Cooperation Treaty Organization (ACTO) member countries are Bolivia, Brazil, Colombia, Ecuador, Guyana, Peru, Suriname, and Venezuela. Its secretariat is located in Brasilia, Brazil.

- It is an intergovernmental organization formed by the eight Amazonian countries by signing the Amazon Cooperation Treaty (ACT).
- The Amazon Cooperation Treaty was drafted and signed on July 3, 1978.
- In 1995, the eight nations decided to create the Amazon Cooperation Treaty Organization (ACTO), to strengthen and implement the objectives of the Amazon Cooperation Treaty.
- It was founded to promote the preservation of the Amazon basin and regulate Amazonian development through international cooperation.
- It is the only socio-environmental block in Latin America.
- It works in different dimensions within the framework of the implementation of the ACT: political-diplomatic, strategic, and technical, building synergies among governments etc.

Key facts about Amazon Rainforest

- It is large tropical rainforest occupying the drainage basin of the Amazon River and its tributaries in northern South America.
- It is bounded by the Guiana Highlands to the north, the Andes Mountains to the west, the Brazilian central plateau to the south, and the Atlantic Ocean to the east.

Significance: At the Amazon Summit, leaders from the eight countries across the Amazon have adopted the Belem Declaration.

• The summit was organized by the Amazon Cooperation Treaty Organization (ACTO).

What is the Belem Declaration?

- The Balem Declaration was adopted at the Amazon Summit.
- The declaration recognises **Indigenous knowledge** as a condition for biodiversity conservation and calls for ensuring full and effective participation of Indigenous Peoples in decision-making and public policy formulation processes.

- The declaration created an alliance for combatting forest destruction, with countries left to pursue their individual deforestation goals.
- It also created a science body for annual reports on Amazon rainforest like the UN's Climate Change Panel.

A-23 The Correct Answer is: d) Paraguay

Explanation: The Amazon rainforest is also known as Amazonia or the Amazon jungle. It is the largest tropical forest in the world, that spans across nine countries: Brazil, Bolivia, Peru, Ecuador, Columbia, Venezuela, Guyana, Suriname, and French Guiana, and overseas territory of France. The rainforest lies entirely in South America and extends from Atlantic Ocean to the Andes Mountains. The Amazon rainforest has been recognised as a repository of ecological services, not only for local tribes and communities, but also for the rest of the world. The Amazon has an incredible rich ecosystem - there are around 40,000 plant species, 1300 bird species, 3000 types of fish, 430 mammals, and a whopping 2.5 million different insects.

Why amazon is called the lungs of the earth?

- It produces at least 5% of the world's total oxygen and has played a crucial role in climate regulation.
- For years, it has functioned as a **carbon sink** meaning it absorbs more carbon than it emits. However, the scientists say that at present the region emits more carbon than it takes in.



A-24 The Correct Answer is: b) Two only

Explanation: - Iran, also known as Persia and officially the Islamic Republic of Iran, is a country in West Asia.

- It has land borders with Iraq, Turkey, Azerbaijan, Armenia, Turkmenistan, Afghanistan, and Pakistan.
- It has maritime borders with 6 other countries: Kuwait, Saudi Arabia, Bahrain, Qatar, the United Arab Emirates, and Oman.
- Iran does indeed have coastlines along the Caspian Sea to the north, the Persian Gulf to the south, and the Gulf of Oman to the southeast.
- The Strait of Hormuz, a narrow water passage, separates Iran from Oman and connects the Persian Gulf with the Gulf of Oman.

Significance: Recent escalation of tensions between Iran and Israel, following assassination of leaders of Hamas and Hezbollah (groups backed by Iran), has spurred the US and other regional powers to step up diplomacy to prevent an all-out war in West Asia.

• India, however, faces a foreign policy dilemma as it has key interests to pursue with both the countries.

A-25 The Correct Answer is: c) Georgia

A-26 The Correct Answer is: b) Urmia

Explanation: Lake Urmia is an endorheic salt lake in northwest of Iran. It is the largest lake inside Iran, and the second biggest salt lake of the world. It is the largest lake in the Middle East.

A-27 The Correct Answer is: d) All of the above

Explanation: Iraq is located in the Middle East and shares borders with six countries: Turkey, Iran, Kuwait, Saudi Arabia, Jordan, and Syria.

- The Tigris and Euphrates rivers traverse Iraq, making it a key region of the Fertile Crescent, known for early agricultural development and civilization.
- Baghdad, the capital of Iraq, has a rich history dating back thousands of years and is one of the oldest continuously inhabited cities.

Significance: US to conclude military mission in Iraq by 2025 under new deal.

- US bases in Iraq have also been targeted by Iran-backed militias. Attacks have intensified following the outbreak of the Israel-Hamas war last year.
- The US has announced an agreement with Iraq to end the military mission of the American-led coalition fighting the Islamic State (ISIS) by 2025, with troops set to leave some bases they have occupied for the past two decades.
- However, the Biden administration has not disclosed the exact number of troops that will remain, refusing to confirm whether it signals a complete withdrawal.

A-28 The Correct Answer is: b) Only 1 and 2

Explanation: The Tigris and Euphrates merge in southern Iraq to form the Shatt al-Arab, which flows into the Persian Gulf.

- These rivers were essential for the rise of Mesopotamian civilization, providing water and fertile land for agriculture.
- Both rivers originate outside Iraq, with the Tigris beginning in Turkey and the Euphrates in Turkey and Syria.
- The Tigris River, located in eastern Iraq, is approximately 1,750 kilometers (1,150 miles) long and begins in the Taurus Mountains of Turkey. Throughout its long history, the banks of the Tigris have been the site of many famous cities, including the current capital of Baghdad. It has been an important trade route for centuries, as it flows through the desert before joining with the Euphrates and flowing into the Persian Gulf.



The Euphrates River, the longest in Western Asia, is 2,800 kilometers (1,740) long, and begins in the Armenian Highlands of Turkey. In ancient times the city of Babylon was built and rebuilt on the Euphrates River by the Amorites and Chaldeans respectively. People rely on the river today for hydroelectric power, as well as drinking water and irrigation.

A-29 The Correct Answer is: a) Only 1 and 2

Explanation: The Clarion-Clipperton Zone is a vast area in the Pacific Ocean.

- It is rich in Polymetallic nodules containing manganese, nickel, cobalt, and other metals, making it a significant focus for deep-sea mining.
- The CCZ mostly lies in international waters, not entirely within the exclusive economic zones (EEZs) of surrounding countries.

Significance: India will apply for licences from the International Seabed Authority (ISA) to explore deep-sea minerals in the Pacific Ocean especially plans to focus on the Clarion-Clipperton Zone.

A-30 The Correct Answer is: a) United Nations Convention on the Law of the Sea (UNCLOS)

Explanation: The CCZ lies in international waters and is regulated under UNCLOS, specifically through the International Seabed Authority (ISA).

• It is not part of the Antarctic Treaty System or managed by the IMO or Ramsar Convention.

Key facts International Seabed Authority (ISA)

- It is an **international organization** established in **1994** to **regulate mining** and related activities in the **international** seabed **beyond national jurisdiction**, an area that includes most of the world's oceans.
- It came into existence upon the entry into force of the 1982 **United Nations Convention on the Law of the Sea (UNCLOS)**, which codified international law regarding territorial waters, sea lanes, and ocean resources.
- Members: It has 169 Members, including 168 Member States and the European Union.
- Functions: It is responsible for granting licenses and regulating activities related to the exploration and exploitation of mineral resources in the international seabed.
 - It ensures that these activities are carried out in a manner that protects the marine environment and promotes the equitable and efficient utilization of resources.
 - Headquarters: Kingston, Jamaica

A-31 The Correct Answer is: c) Japan and Russia

Explanation: - The island chain known as the Kurils stretches north across the Pacific Ocean from the Japanese island of Hokkaido to the southern tip of Russia's the Kamchatka Peninsula.

- It consists of 56 islands and minor rocks.
- The chain is part of the belt of geologic instability circling the Pacific and contains at least 100 volcanoes, of which 35 are still active, and many hot springs.
- Earthquakes and tidal waves are common phenomena over these islands.
- Four islands which Russia calls the Southern Kurils and Japan call the Northern Territories are the subject of a 60-year-old dispute between the two nations.
 - They are Kunashir (known in Japanese as Kunashiri), Iturup (Etorofu), Shikotan and the rocky Habomai islets.
- The southernmost islet in the Habomai group lies only a few kilometres off Nemuro on the Japanese island of Hokkaido
- Because of the dispute, Russia and Japan have not yet signed a peace treaty to end World War II.



Additional Information

- In 1855, Russia and Japan signed the Treaty of Shimoda, which gave Japan ownership of the four southern islands and Russia ownership of everything to the north.
- Communities developed on three of the islands and by the time World War II began, there were 17,000 Japanese residents.
- Russia took control of the islands at the end of the war, and by 1949 it had deported all residents to Japan.
- Under the 1951 San Francisco Peace Treaty, signed between the Allies and Japan, Japan renounced "all right, title and claim to the Kuril Islands", as well as over other possessions. But this resolved nothing because Russia did not sign the treaty and the Japanese government has never recognised the four islands as part of the Kuril chain.
- In 1956, the Japan-Soviet Joint Declaration restored diplomatic ties between the two nations, but a formal peace deal remained out of reach because of the territorial dispute.
- At the time, Russia proposed returning the two islands closest to Japan, a deal Japan rejected, in part because the two islands represent only 7% of the land in question.
- Since then, the dispute has remained unresolved.

A-32 The Correct Answer is: d) All of the above

Explanation: Taiwan, officially the Republic of China (ROC), is a country in East Asia. It is located at the junction of the East and South China Seas in the northwestern Pacific Ocean, with the People's Republic of China (PRC) to the northwest, Japan to the northwest, and the Philippines to the south.

- Taiwan is separated from mainland China by the Taiwan Strait, not the Luzon Strait.
- Taiwan is separated from the Philippines by the Bashi Channel and the Luzon Strait.
- Taiwan is not a member of the United Nations. The UN General Assembly passed Resolution 2758 in 1971, which recognized the People's Republic of China (PRC) as the sole legitimate representative of China in the UN. This resolution effectively expelled Taiwan from the UN.
- Greenland is the largest island in the world, followed by New Guinea and Borneo.

Significance: A Japanese warship cruised for the first time to assert its freedom of navigation through the Taiwan Strait.

A-33 The Correct Answer is: a) Only 1 and 2

Explanation: Taiwan is a global hub for semiconductor manufacturing, with companies like TSMC leading the industry.

- The Hsinchu Science Park is a significant technological and innovation hub.
- While agriculture plays a role, the **economy** is **predominantly industrial** and **technology-driven**.

A-34 The Correct Answer is: d) South China Sea and East China Sea

Explanation: Taiwan Strait, It is also called Formosa Strait which separates the island of Taiwan and continental Asia.

- Ports: The chief ports are Amoy in mainland China and Kao-hsiung in Taiwan.
- Rivers: Several rivers including the Jiulong and Min rivers from China's Fujian Province drain into the Taiwan Strait.
- The biggest islands along the Taiwan side include Penghu (or Pescadores), Xiamen, and Pingtan.
- The Taiwan Strait constitutes a critical corridor connecting the South China Sea to the East China Sea and also serves as a busy navigational waterway, on which millions of tons of cargo are ferried annually.
- The strait is also one of the most important fishing grounds in China and more than a hundred economically important fish species are found here.



What is a strait?

- A strait is a narrow body of water that connects two larger bodies of water.
- A strait is similar to a canal cutting through an isthmus (a narrow strip of land), but a strait is formed naturally and canals are built by people.
- Significance: Straits are often important transportation routes since they allow ships to pass from one body of water to another.

A-35 The Correct Answer is: c) Brunei

Explanation: Brunei is located in Southeast Asia on the island of Borneo.

- Capital: Bander Seri Begawan the capital and largest city of Brunei.
- · It is uniquely divided into two separate parts by Malaysia's Limbang district.
- The country has a 161 km coastline along the South China Sea.

Significance: Recently, the Prime Minister of India said he was looking forward to strong ties with Brunei, especially in boosting commercial and cultural linkages, as he visited Bandar Seri Begawan.

A-36 The Correct Answer is: c) Malaysia

Explanation: Brunei is completely surrounded by Malaysia's Sarawak state on its land side.

It does not share land borders with any other country.

A-37 The Correct Answer is: d) All of the above

Explanation: The Great Barrier Reef is the world's largest coral reef system. Reef, which is large enough to be visible from space, is made up of nearly 3,000 individual reefs

- The reef is located in the Coral Sea, off the coast of Queensland, Australia.
- It was declared a World Heritage Area in 1981 because of its 'outstanding universal value'.
- Coral reefs are large colonies of invertebrate, tiny soft-bodied animal called Coral polyps, that lives in symbiotic relationship with small algae like organism called zooxanthellae. Coral polyps provide protection to zooxanthellae in return of nutrient. Zooxanthellae also provide them clourful hues.
- Coral reefs are some of the most bio diverse and productive ecosystems. They also act as natural barriers to shorelines, provides food source to more than 500 million people and livelihood to individuals in tourism industry.
- Bleaching occurs when healthy corals become stressed by changes in ocean temperatures, causing them to expel algae living in their tissues which drains them of their vibrant colours.
- Bleaching was first seen on the reef in 1998 -- at the time, the hottest year on record -- but as temperature records continue to tumble its frequency has increased, giving coral less time to recover.

Corals are of two types:

- Hard corals: act as building blocks for reef. They extract calcium carbonate from seawater to build hard, white coral exoskeletons.
- Soft Corals: are flexible because they lack a solid skeleton.

In India, Coral reefs are present in Gulf of Kutch, Gulf of Mannar, Andaman & Nicobar, Lakshadweep Islands and Malvan (Maharashtra).

Significance: Water temperatures in and around Australia's Great Barrier Reef have risen to their warmest in 400 years over the past decade, according to a new study.



A-38 The Correct Answer is: d) Argentina, Bolivia, Chile

Explanation: - The Lithium Triangle is a region of the Andes rich in lithium reserves around the borders of Argentina, Bolivia and Chile.

- The lithium in the triangle is concentrated in various salt pans that exist along the Atacama Desert and neighboring arid areas.
- The area is thought to hold around 54% of the world's lithium reserves.
- The Indian Navy has shown interest in the Lithium Triangle as lithium will be required on Li-ION batteries that are planned to be fitted in future submarines.

Significance of lithium

- Key component of rechargeable batteries (used in EVs) and energy storage solutions.
- Critical mineral for energy transition, and net-zero emissions will require higher reliance lithium.
- Lithium salts reduces corrosion and responsible for slow erosion of glass

Significance: Recently India has discovered two lithium mines and one copper mine in Argentina in the South America continent.

- The Center sent a team of three geologists in November last year to "assess potential lithium deposits" in the Latin American nation
- The team included one geologist each from Mineral Exploration Corporation Limited (MECL), KABIL (Khanij Bidesh India Limited) and Geological Survey of India (GSI).
- KABIL, a joint venture set up through the participation of National Aluminum Company (NALCO), Hindustan Copper (HCL) and MECL, aims to ensure continuous supply of critical and strategic minerals to the domestic market.
- India formed 'Khanij Videsh India Limited' in August 2019 for exploration of minerals in other countries; Which recently entered into an agreement with an Argentinian firm for the exploration of minerals like lithium.

A-39 The Correct Answer is: c) All three

Explanation: - A recent study published in the journal IEEE Transactions on Geoscience and Remote Sensing reveals that Chile's Atacama salt flat is sinking at 1 to 2 centimetres per year due to lithium brine extraction.

- Lithium brine extraction is a process where salt-rich water is pumped to the surface and into evaporation ponds to extract lithium. This method is prevalent in salt flats like Chile's Atacama, one of the world's largest lithium sources.
- The subsidence is occurring because the rate of **lithium-rich brine** pumping exceeds the natural recharge rate of the **aquifers**, leading to a downward movement of the **Earth's** surface.
- The most affected region is in the southwest part of the **salt flat**, where lithium mining operations are **concentrated**. The sinking area measures approximately 8 km from north to south and 5 km from east to west.

Environmental impact of Lithium Mining

- Water scarcity: The extraction process is water-intensive; it requires approximately 2,000 tons of water to produce just one ton of lithium.
 - This is particularly problematic in the Atacama Desert, where water is already scarce, affecting indigenous communities and local wildlife.
- Chemical contamination: Chemicals like sulfuric acid and sodium hydroxide used in lithium extraction contaminate the soil and water, posing a severe threat to ecosystems and endangering species.
- Impact on Wildlife: A 2022 study highlighted that lithium mining has led to a decline in the flamingo population in the Atacama region due to reduced water levels, affecting their reproduction.



A-40 The Correct Answer is: c) Only three

Explanation: The Panama Canal is an artificial 82 km (51 mi) waterway in Panama that connects the Atlantic Ocean with the Pacific Ocean, cutting across the Isthmus of Panama, and is a conduit for maritime trade.

- The entire Panama Canal lies within Panama's borders.
- Gatun Lake plays a crucial role in the canal's operation. It acts as a large reservoir, providing the water needed to raise and lower ships through the canal's locks.
- While France did attempt to build the canal in the late 19th century, their efforts failed due to financial difficulties and engineering challenges. The **United States** eventually took over and **completed the project** in **1914**.
- The US continued to control the canal and surrounding Panama Canal Zone until the Torrijos—Carter Treaties provided for its handover to Panama in 1977. After a period of
 joint American—Panamanian control, the canal was taken over by the Panamanian government in 1999. It is now managed and operated by the Panamanian governmentowned Panama Canal Authority.
- The Panama Canal shortcut greatly reduces the time for ships to travel between the Atlantic and Pacific oceans, enabling them to avoid the lengthy, hazardous Cape Horn
 route around the southernmost tip of South America via the Drake Passage or Strait of Magellan. It is one of the largest and most difficult engineering projects ever
 undertaken.

Significance: The Panama Canal is struggling to persuade traders in liquefied natural gas and food commodities such as grains to return to the trade route after they were forced out by a historic drought last year.

- The Panama Canal continues to experience serious challenges because of drought. The Panama Canal is not a sea-level canal and instead utilizes locks, which means the operation of the canal functions via normal precipitation to fill Gatun Lake, the reservoir that feeds fresh water to the canal locks. According to the Panama Canal Authority (ACP), over the past five years, the average water level at Gatun Lake during November is 86.7 feet. The current depth is 79.8 feet.
- Since the beginning of the 2023 dry season, the Panama Canal adopted several water-saving and conservation measures in the transit operation, including the use of water-saving basins in the Neopanamax Locks and cross-filling in the Panamax Locks," according to the ACP website. "In addition, the late arrival of this year's rainy season, and lack of precipitation in the Canal watershed has obliged the Canal to reduce the transit capacity to approximately 32 vessels per day since July 30, 2023, while managing the available rainfall over the watershed to maintain Gatun Lake at a level that would offer a competitive draft for our clients. On Sept. 29, 2023, the Canal announced an additional reduction in capacity, effective Nov. 1, 2023."
- The ACP notes that, even with all the measures taken, the level of Gatun Lake has continued to decline to unprecedented levels for this time of year.

A-41 The Correct Answer is: a) Finland

Explanation: The **Baltic states** or **the** Baltic **countries** is a geopolitical term, which currently is used to group **three countries: Estonia, Latvia, and Lithuania.** All three countries are members of **NATO**, the **European Union**, the **Eurozone**, and the **OECD**. The three sovereign states on the **eastern coast of the Baltic Sea** are sometimes referred to as the "**Baltic nations**", less often and in historical circumstances also as the "**Baltic republics**", **the "Baltic lands**", or simply the **Baltics**.

• All three Baltic countries are classified as **high-income economies** by the **World Bank** and maintain a **very high Human Development Index.** The three governments engage in intergovernmental and parliamentary cooperation. There is also frequent cooperation in foreign and security policy, defence, energy, and transportation.

Significance: The Baltic states (Estonia, Latvia, and Lithuania) have been in the news frequently due to their proximity to Russia and the ongoing war in Ukraine.



A-42 The Correct Answer is: b) Russia

Explanation: Russia is the only country that shares a land border with all three Baltic states.

A-43 The Correct Answer is: a) Only 1, 2, and 3

Explanation: All Baltic States (Estonia, Latvia, Lithuania) border the Baltic Sea.

- Latvia shares borders with both Estonia to the north and Lithuania to the south.
- Lithuania is the southernmost of the Baltic States.
- However, Estonia has the longest coastline among the three, contrary to statement 4.

A-44 The Correct Answer is: a) Botswana

Explanation: Recently, a 2,492-carat diamond, the second-largest ever found, has been unearthed in **the Karowe Diamond Mine**, northeastern **Botswana**, by Canadian company Lucara Diamond.

- The newly discovered diamond is second to the 3,106-carat Cullinan Diamond, which was found in South Africa over a century ago.
- Botswana, a leading diamond producer, relies heavily on the diamond industry, which constitutes 30% of its GDP and 80% of its exports.
- The diamond was unearthed using advanced X-ray transmission technology, which enhances the recovery of large stones without causing damage.
- The diamond is yet to be fully assessed, and its potential to yield high-quality gems remains to be determined.
- Diamond characteristics:
- Formation: Diamonds form in the Earth's mantle and are brought to the surface through volcanic activity. They are found in volcanic landforms like dykes and sills.
- Uses: Diamonds are utilised in jewellery, industrial cutting tools, and polishing due to their hardness.

A-45 The Correct Answer is: d) All of the above

Explanation: - Botswana is a landlocked country in Southern Africa.

- It shares borders with Namibia to the west and north, Zimbabwe to the northeast, Zambia to the north (a short stretch near Kazungula), and South Africa to the south and southeast.
- Its longest border is with South Africa, spanning approximately 1,840 kilometers.

A-46 The Correct Answer is: c) Only 1and 3

Explanation: The Kalahari Desert dominates much of Botswana's geography, covering nearly 70% of the country.

- While classified as a desert, it is not a true desert as it receives more rainfall (100-500 mm annually) than arid deserts.
- The San people, also known as the Bushmen, have lived in the Kalahari region for tens of thousands of years, using traditional knowledge to survive in this environment.

[We will explore the Kalahari Desert in great detail in Volume 4]

A-47 The Correct Answer is: d) All of the above

Explanation: - This delta is located in **north-west Botswana** comprises **permanent marshlands** and seasonally **flooded plains.**

• The Okavango delta is formed by the Okavango river, which originates in the highlands of Angola.



- The Okavango delta is a UNESCO World Heritage Site in southern Africa.
- The delta was named as one of the Seven Natural Wonders of Africa.
- The Okavango Delta is one of a very few large inland delta systems without an outlet to the sea, known as an endorheic delta.
- Its waters drain instead into the desert sands of the Kalahari Basin.
- One of the unique characteristics of the site is that the **annual flooding** from the **River Okavango** occurs during the dry season, with the result that the native plants and animals have synchronized their biological cycles with these seasonal rains and floods.
- It is an exceptional example of the interaction between climatic, hydrological and biological processes.
- The delta is home to Africa's Big Five wildlife species: Savanna elephants, Cape buffaloes, rhinos, lions and leopards.
- There are also giraffes, zebras, antelopes, pangolins, 400 bird species and over 1,000 plant species.

• The delta is also the homeland of indigenous people like the San.

A-48 The Correct Answer is: c) Only statements 2 and 3 are correct.

Explanation: Line of Actual Control (LAC): The LAC is the demarcation that separates Indian-controlled territory from Chinese-controlled territory.

- Although not recognised as an official border, it serves as a defacto border between India and China.
- Pangong Tso is a high-altitude lake in the Ladakh region, partially controlled by India and China, with the LAC running through it.
- India considers the LAC to be 3,488 km long, while the Chinese consider it to be only around 2,000 km.
- It is divided into three sectors:
 - the eastern sector which spans Arunachal Pradesh and Sikkim
 - the middle sector, in Uttarakhand and Himachal Pradesh, and
 - the western sector in Ladakh.
- It runs along Tibet and Xinjiang on the Chinese side.
- The LAC has always remained a major cause of tension between India and China. There are areas along the border where India and China have differing perceptions of the LAC.
- Due to both sides undertaking patrolling up to their respective perceptions of the LAC, transgressions do occur.
- India's claim line is the line seen in the official boundary marked on the maps as released by the Survey of India, including both Aksai Chin and Gilgit-Baltistan. This means LAC is not the claim line for India.
- In China's case, LAC is the claim line except in the eastern sector, where it claims the entire Arunachal Pradesh as South Tibet.

Significance: The External Affairs Minister recently said that about 75% of the "disengagement problems" with China on the military standoff along the Line of Actual Control in eastern Ladakh have been "sorted out"

A-49 The Correct Answer is: c) 5-2-1-4-3



B-1 The Correct Answer is: c) 1, 3 & 5 only

Explanation: The river Ganga rises in the Gangotri glacier near Gaumukh (3,900 m) in the Uttarkashi district of Uttarakhand. Ganga basin is largest river basin in India with a length of approximately 2500 Kilometres. It is known by various names throughout its course. It is known as Bhagirathi at its source. At Devaprayag, rivers Bhagirathi and Alakanada join to give birth to river Ganga. The source of Alaknanda River is the confluence of Satopanth Glacier and Bhagirathi Kharak Glacier, which is part of Greater Himalayas.

Through the course of Alakananda, we will come across FIVE sacred river confluences – called the Panch Prayags. The first prayag, called Vishnuprayag or Joshimath, is place where Dhauli and Alakanada rivers meet. Dhauli river originated from Nanda Devi National Park in Uttrakhand. The second being Nandaprayag, a place where Nandakini joins the Alakananda river. The Alakanada river is further joined by Pindar river at Karnaprayag, the third prayag. At Rudraprayag the fourth prayag, Mandakini joins it. Finally, it joins the Bhagirathi river at Devaprayag, the fifth prayag.

B-2 The Correct Answer is: d) Neither 1 nor 2

Explanation: In continuation with previous question, after five sacred river confluences, Ganga passes the Rajaji National Park, and reaches the town of Haridwar. It then flows along the border of Uttarakhand and Uttar Pradesh. After entering Uttar Pradesh, it reaches Prayagraj (which is also called Allahabad). It is very sacred place where Maha Kumbh Mela takes place. In this place, the three rivers – Ganga, Yamuna, Saraswati – merge and hence it is called Triveni Sangam. After passing through Varanasi and forming small border of UP and Bihar, it then enters Bihar. In Jharkhand, Ganga flows through its north eastern border and then enters West Bengal. It divides into two parts near Farakka, that is, Ganga now becomes a distributary. One branch flow through West Bengal as Bhagirathi-Hooghly River system whereas other enters Bangladesh as Padma river. Finally, Hooghly river enters in Bay of Bengal near Sagar Island.

- Ganga basin is largest river basin in India. However, in terms of length, Ganga (~2500 km) is not largest river in India. In the world, NILE (6600 km) is the longest river.
- When Ganga enters Bangladesh, it assumes name of PADMA and not when it joins Brahmaputra.

B-3 The Correct Answer is: d) Neither 1 nor 2

Explanation: Statement 1 is a bit extreme – using keyword EXACTLY EQUAL – which itself seems incorrect. UPSC, at times, tricks aspirants by using such keywords. Tropic of Cancer cuts Ganga river system many times – Son in Madhya Pradesh, Hooghly-Bhagirathi in West Bengal, Padma in Bangladesh. However, Ganga is not cut by Tropic of Cancer in Jharkhand (JH) since it passes through top right corner of the state, far above Tropic of Cancer.



B-4 The Correct Answer is: d) 1, 2 and 3

Explanation: Now, let us look at the right bank tributaries of river Ganga. First one is Yamuna river, which is also called as Jamuna. The source of Yamuna lies in Yamunotri Glacier in Uttrakhand. It is the western most and the longest tributary of Ganga and joins it in the city of Prayagraj. Second right bank tributary of Ganga is Son, which originates near Amarkantak in Madhya Pradesh and joins Ganga in Patna. The Third right bank tributary of river Ganga is Damodar, which originates in Chotta Nagpur Plateau of Jharkhand state and meets Hoogly in Kolkata.

Having discussed the right bank tributaries, let's discuss the left bank tributaries of River Ganga. First one is Ramganga. It originates from Dushatoli range in Uttrakhand and passes through Jim Corbett National Park and confluences with river Ganga in Uttar Pradesh. Next one is Gomati, which originates from Gomat Taal in Uttar Pradesh and meets Ganga at a place near Varanasi. The third one is — Ghaghara river, which is a transboundary river, as it originates in Tibet and meets Ganga on UP and Bihar border. Other right bank tributaries are Gandak and Koshi which are also transboundary as they originate from Nepal. Kosi river is also known as sorrow of Bihar due to heavy flooding in Bihar.

- As discussed earlier, Ganga has both left and right bank tributaries.
- All the Five Prayas on the course of river Alakananda lie in Uttrakhand.
- Damodar is right bank tributary of Ganga originating from Chotta Nagpur Plateau in Jharkhand state of India.

B-5 The Correct Answer is: b) 3 only

Explanation: Few left bank tributaries of Ganga are transboundary rivers, namely – Ghaghara, Gandak, Kosi

- The Ganges passes through the states of Uttarakhand, Uttar Pradesh, Bihar, Jharkhand, and West Bengal. But none of the Union Territories
- Ganga is an east flowing river which enters into Bay of Bengal near Sagar Island.

B-6 The Correct Answer is: d) All of the above

Explanation: Yamuna is longest tributary of Ganga NOT distributary.

- The important tributaries of the Yamuna River are Tons, Hindon, Chambal, Sindh, Betwa and Ken.
- Banas River, Kali Sindh River, Parbati River are important tributaries of Chambal
- Ganga doesn't flow through Siliguri corridor. It enters West Bengal much southwards (refer Map) and distributes into two branches at Farakka.

B-7 The Correct Answer is: a) 1 only

Explanation: Perennial rivers are those rivers which flow throughout the year. Ganga is a perennial river as it doesn't depend on the rain alone but is also fed by melting snow from Himalayas and hence could flow throughout the year.

Since Ganga originates from Gangotri Glacier, Statement 2 is incorrect. UPSC sometimes use such statements to create some logically-seeming statement but manipulates the facts thus rendering the statement incorrect.



B-8 The Correct Answer is: c) 1 only

Explanation: Indus River system includes the Indus and its tributaries. like Jhelum, Chenab, Ravi, Beas, Sutlej etc. It originates from the Bokhar Chu Glacier near the Mansarovar Lake in the Tibetan region at an altitude of 4,164 m in the Kailash Mountain range. It is also known as the Sindhu, is the westernmost of the Himalayan rivers in India. it is also known as 'Singi Khamban; or Lion's mouth. After flowing in the northwest direction between the Ladakh and Zaskar ranges, the Indus river flows in north-west direction from its source till the Nanga Parbat Range. Subsequently, the river gets into Pakistan through the Northern Areas (Gilgit-Baltistan), running across the North in a southward route down the whole span of Pakistan, to join the Arabian Sea close to the port city of Karachi situated in Sindh. It receives a number of Himalayan tributaries such as the Shyok, the Gilgit, the Zaskar, the Hunza, the Nubra, the Shigar, the Gasting and the Dras. Given below are the five main tributaries of the Indus River:

Jhelum River: Jhelum River is a river that flows in India and Pakistan administered Kashmir (PoK), Punjab and Pakistan. It is the westernmost of the five rivers of Punjab, and passes through Srinagar district. It is a tributary of the Chenab River and has a total length of about 725 kilometres (450 mi).

The river Jhelum originates from Verinag Spring situated at the foot of the Pir Panjal in the south eastern part of the valley of Kashmir. It flows through Srinagar and the Wular lake before entering Pakistan through a deep narrow gorge. It joins Chenab near Jhang in Pakistan.

Chenab River: The Chenab River traditionally known as Chandrabhaga is a major river of India and Pakistan. The waters of the Chenab are allocated to Pakistan under the terms of the Indus Water Treaty. Chenab is formed by the confluence of Chandra and Bhaga and hence called Chandrabhaga. They both meet at Tandi near Keylong in Himachal Pradesh. It flows for a distance of 1180 km. through Jammu & Kashmir before entering Pakistan.

Ravi River: It arises west of the Rohtang pass in Kullu hills of Himachal Pradesh and flows through the Chamba valley. It flows along the Indo-Pak border for 80 km before entering Pakistan. It is allocated to India under Indus Water Treaty.

Beas River: The Beas River is also known as the Bias, (Sanskrit, Vipasa; Greek, Hyphasis). It is an important tributary of Indus and originates from Beas Kund near Rohtang pass in Himachal Pradesh. The river rises 4,361 metres (14,308 ft) above sea-level on the southern face of Rohtang Pass in Kullu. It traverses the Mandi district and enters the Kangra district at Sandhol, 590 metres (1,940 ft) above sea level. It then flows for about 470 km (290 mi) to the Sutlej River in the Indian state of Punjab. It meets Satluj at Harike.

Sutluj River: The Sutlej River (Satluj River) is the longest of the five rivers that flows through the historic crossroads region of Punjab in northern India and Pakistan. The Sutlej River is also known as Satadree. It is the easternmost tributary of the Indus River. It is an antecedent river. The waters of the Sutlej are allocated to India under the Indus Water Treaty between India and Pakistan, and are mostly diverted to irrigation canals in India. Its total length is 1,050 km in India.

The source of the Sutlej is near Lake Rakshastal near Mansarovar in Tibet. From there, under the Tibetan name Langqên Zangbo (Elephant River), it flows for about 400 km. parallel to Indus. It passes through Shipki La pass, entering India in Himachal Pradesh state. It then turns slightly, heading west-southwest for about 360 km (220 mi) to meet the Beas River near Harike in Firozpur Punjab

- Indus doesn't cross Tropic of Cancer.
- Jhelum and Ravi confluence with Chenab, which further joins Sutlej before meeting Indus in Pakistan.



B-9 The Correct Answer is: d) 2-1-3-4

Explanation: Indus → Near but latitudinally above Mansarovar Lake → Sutlej lies latitudinally below Indus (Refer Map)

- Chenab → Himachal Pradesh
- Ganga → Uttarakhand

B-10 The Correct Answer is: b) All 1, 2 & 3

Explanation: Indus river flows through only Union Territory of Ladakh (erstwhile Jammu & Kashmir).

- Indus enters Pakistan north to Nanga Parbat (refer Map).
- Jhelum flows into Wular and Dal lakes in Jammu and Kashmir.

Wular Lake (also spelt Wullar) is one of the largest fresh water lakes in Asia. It is sited in Bandipora district in Jammu and Kashmir, India. The lake basin was formed as a result of tectonic activity and is fed by the Jhelum River.

Dal is a lake in Srinagar, the summer capital of Jammu and Kashmir, India. It is an urban lake, which is the second largest in the union territory of Jammu and Kashmir. It is integral to tourism and recreation in Kashmir and is named the "Lake of Flowers", "Jewel in the crown of Kashmir "or "Srinagar's Jewel". The lake is also an important source for commercial operations in fishing and water plant harvesting.

B-11 The Correct Answer is: d) All of the above

Explanation: First War between India and Pakistan took place in 1965 whereas treaty was signed in 1960.

• As per the Indus Water Treaty of 1960. between India and Pakistan, brokered by World Bank. India can use 20% water of Indus, Sutlej and Jhelum while 80% of Chenab, Ravi and Beas.

The Indus Water Treaty (IWT) between India and Pakistan marks its 60th anniversary on 19th September 2020.

B-12 The Correct Answer is: d) All of the above

Explanation: Brahmaputra (2,900 km) is one of the longest rivers of the world with regard to the volume of water. It is among the four largest rivers of the world. Its drainage system is spread in three countries -China (Tibet), India and Bangladesh. It originates from the Chemayungdung Glacier, south of the Mansarovar Lake in the Kailash range. Most of its flowing course in Tibet is parallel to the Himalayas. In Tibet, it is also known as Yarlung Tsangpo, meaning the 'purifier'. Here it is navigable at a height of 4,000 m. from the mean sea level; it is the most surprising navigable tract in the world. It takes a sharp south-westerly turn along the eastern side of the Namcha Barwa Mountain and forms a 5,500 m deep gorge. Tsangpo is known as Dihang or Siang in Arunachal Pradesh. It enters India west of sadiya in Arunchal Pradesh. It then recieves its left bank tributaries, Dibang or Sikang and Lohit. It is then known as Brahmaputra. After that it enters into the valley of Assam where few more tributaries drain into it.



Among them are Subansiri, Dhansari, Manas, Kameng. Here, Brahmaputra forms a complex course, where there are large riverine islands. Among these, Majuli is the largest riverine island in the world and also declared it as first Island district in 2016 and PROJECT SACRED was launched in March 2017 for its protection. It flows westward, upto the city of Dhubri and thereafter turns southward in the Garo hills region and enters into Bangladesh near Golpara. It is called Jamuna in Bangladesh. Here, Teesta and other rivers meet Brahmaputra which together fall into the Padma (Ganga). Barak, the main tributary of Meghna originates in the hills of Manipur. River Barak keeps on flowing in Bangladesh, until it falls into the Ganga – Brahmaputra near Bhairav Bazar.

- It assumes name of Brahmaputra in Assam valley, just after entering Assam.
- Majuli island, lies in the river, is the largest river island in the world which is situated in Assam state of India.
- Lohit is the left bank tributary and joins Brahmaputra in state of Assam.

B-13 The Correct Answer is: d) None

Explanation: 1. Brahmaputra originates near source as Indus and Sutlej.

- 2. It is not the longest river in Asia. Yangtze river is the longest river in Asia. Indus is the longest in South Asia.
- 3. It does not pass through Myanmar before entering India through Arunachal Pradesh. It passes through Tibet, Arunachal Pradesh, Assam and Bangladesh.

B-14 The Correct Answer is: b) 1, 2 & 5 only

Explanation: River Source

1. Manas : Tibet

2. Lohit : Kangri Garpo range (Tibet)

3. Barak : Manipur (India)4. Teesta : Sikkim (India)

5. Subhansiri : Tibet

B-15 The Correct Answer is: b) 2-1-4-5-3

B-16 The Correct Answer is: a) 3 only

Explanation: The Yamuna sometimes called Jamuna is the second-largest tributary river of the Ganga and the longest tributary in India. Originating from the Yamunotri Glacier at a height of 6,387 metres (20,955 ft) on the southwestern slopes of Banderpooch peaks of the Lower Himalaya in Uttarakhand, it travels a total length of 1,376 kilometres (855 mi) crossing several states: Himachal Pradesh, Haryana, Delhi, and later Uttar Pradesh, meeting its tributaries on the way, including Tons, Chambal, (its longest tributary which has its own large basin) followed by Sindh, Betwa, and Ken. It merges with the Ganga at Triveni Sangam, Prayagraj, which is a site of the Kumbh Mela, a Hindu festival held every 12 years. This encompasses 40.2% of the whole Ganges valley.



The important tributaries of the Yamuna River are Tons, Chambal, Hindon, Betwa and Ken.

- 1. Yamuna is the longest tributary of river Ganga. Ghaggar is largest tributary of Ganga.
- 2. Tropic of Cancer doesn't cut Yamuna. Hence it cannot cut Tons as well. Tons is largest tributary of Yamuna.

(UPSC, sometimes, mentions two facts in a statement – one correct and one incorrect – and aspirants sometime ignore or misread the incorrect fact and mark the statement as correct. So, please read each fact in a statement carefully.)

3. Chambal is the east flowing right bank tributary of river Yamuna.

B-17 The Correct Answer is: b) 1 & 3 only

Explanation: 1. Chambal is the longest tributary of Yamuna.

- 2. Ken and Betwa are right bank tributaries of river Yamuna.
- 3. Tons is largest tributary of Yamuna.

Largest Tributary → It is the river which discharges maximum amount of water.

Longest Tributary → It is the river which has maximum length of all.

B-18 The Correct Answer is: d) Neither 1 nor 2

Explanation: 1. Yamuna doesn't flow through Madhya Pradesh and river Chambal merges with Yamuna in Uttar Pradesh.

2. Yamuna is not cut by Line of Indian Standard Time (IST). IST passes through Mirzapur in Uttar Pradesh which is east to Allahabad (Prayagraj), the place of confluence of Yamuna and Ganga.

B-19 The Correct Answer is: d) Neither 1 nor 2

Explanation: The Narmada, also called the Rewa, is a river in central India and the fifth longest river in the Indian subcontinent. It is the third longest river that flows entirely within India, after the Godavari, and the Krishna. It originates from the hills of Amarkantak in Madhya Pradesh. It is also known as Life Line of Madhya Pradesh for its huge contribution to the state of Madhya Pradesh in many ways. It forms the traditional boundary between North India and South India and flows westwards in the rift valley over a length of 1,312 km (815.2 mi) before draining through the Gulf of Cambay into the Arabian Sea, 30 km (18.6 mi) west of Bharuch city of Gujarat. It forms the famous Dhuandhar Falls (is a waterfall in Jabalpur district in the Indian state of Madhya Pradesh)

It is one of only three major rivers in peninsular India that run from east to west (longest west flowing river), along with the Tapti River and the Mahi River. It is one of the rivers in India that flows in a rift valley, flowing west between the Satpura and Vindhya ranges. Being the rift valley river, Narmada river does not form delta.

It flows through the states of Madhya Pradesh and Maharashtra, actually along the border between Madhya Pradesh and Maharashtra and then the border between Maharastra and Gujarat and then in Gujarat.



Important right bank tributaries of Narmada are: Orsang, Kolar, and Hiran

Important left bank tributaries drain the northern slopes of the Satpura Range and join the Narmada at different places. Tributaries are Burhner, Banjar, Sher, Shakkar, and Tawa (longest tributary)

- 1. It forms a rift valley between Vindhya and Satpura ranges.
- 2. Longitudinal range of Narmada is defined by Gulf of Khambat coastline of Gujarat in west to Amarkantak Hills in Madhya Pradesh in the east. Since, Malwa Plateau lies in West-central Madhya Pradesh, it lies within the longitudinal range of Narmada river. Also, Malwa Plateau lie to the north of Narmada.

B-20 The Correct Answer is: d) Neither 1 nor 2

Explanation: The Tapti River (or Tapi) is a river in central India between the Godavari and Narmada rivers which flows westwards before draining into the Arabian Sea. Its origin is near Multai Reserve forest in Madhya Pradesh. It flows westwards over a length of 724 km. It flows through Surat, and is crossed by the Magdalla ONGC Bridge (Surat). The Tapi River basin encompasses an area of 65,145 km2, which is nearly two percent of the total area of India. The basin lies in the states of Maharashtra, Madhya Pradesh, and Gujarat.

- 1. It originates from Multai Reserve Forest in Madhya Pradesh.
- 2. Irrespective of the source of the rivers, Indus is the longest of all west flowing rivers in India. Narmada is the longest west flowing river lying entirely in India

B-21 The Correct Answer is: d) Neither 1 nor 2

Explanation: The Mahi is a west flowing river and originates from Mehal lake located in the western part of Vindhyas and after flowing through the Vagad region of Rajasthan, enters Gujarat and flows into the Arabian Sea. Most peninsular rivers in India flow in an easterly direction into the Bay of Bengal. It has given its name to the Mahi Kantha agency of Bombay and also to the mehwasis, marauding highlanders often mentioned in Arabian chronicles.

1. Tropic of Cancer cuts river Mahi twice but once in Gujarat and once in Madhya Pradesh (Refer the Map)

2. It flows through Rajasthan and drains into Gulf of Cambay north, to mouth of Narmada. (This statement contained three facts. Aspirants should pay more attention when a statement contains many facts, as there are chances of manipulating one of the facts so that the overall statement might look correct. This is one of the ways used by UPSC to confuse students.)

B-22 The Correct Answer is: d) All of the above

Explanation: The Sabarmati river is one of the major rivers of western India. It originates in Dhebar lake in Aravalli Range of the Udaipur District of Rajasthan and drains into the Gulf of Cambay of Arabian Sea after travelling 371 km in a south-westerly direction across Gujarat. The Sabarmati basin extends over states of Rajasthan and Gujarat having an area of 21,674 Sq km. Ahmedabad is an industrial city situated on the banks of Sabarmati.



B-23 The Correct Answer is: b) 2 only

Explanation: The Mahanadi is a major river in East Central India. It originates from Sihawa (Dandakaranya region) in Dhamtari district of Chhattisgarh and has a total course of 858 kilometres (533 mi). Mahanadi is also known for the Hirakud Dam. The river flows through the states of Chhattisgarh and Odisha. The Mahanadi basin extends over states of Chhattisgarh and Odisha and comparatively smaller portions of Jharkhand, Maharashtra and Madhya Pradesh, draining an area of 1.4 lakh Sq.km.

It is bounded by the Central India hills on the North, by the Eastern Ghats on the South & East, and by the Maikala range on the West.

Its main Left bank Tributaries are: Kharun, Seonath, Hasdeo, Mand and Ib.

Its main Right bank Tributaries are: Ong, Tel and Jonk.

B-24 The Correct Answer is: b) 2 only

Explanation: 1. Mand is left bank tributary whereas Ong is right bank tributary of Mahanadi.

2. Seonath is the longest tributary of Mahanadi.

B-25 The Correct Answer is: a) 1-3-4-2

Explanation: The Godavari is India's second longest river after the Ganga. It rises from a place called Trimbakeshwar located in the Western Ghats in Nashik district in the state of Maharashtra. It flows east for 1,465 kilometres (910 mi), draining the states of Maharashtra (48.6%), Telangana (18.8%), Andhra Pradesh (4.5%), Chhattisgarh (10.9%) and Odisha (5.7%). The basin is bounded by Satmala hills, the Ajanta range and the Mahadeo hills on the north, by the Eastern Ghats on the south and the east and by the Western Ghats on the west. The river ultimately empties into the Bay of Bengal through an extensive network of tributaries. It forms one of the largest river basins in the Indian subcontinent, with only the Ganga and Indus rivers having a larger drainage basin. In terms of length, catchment area and discharge, the Godavari is the largest in peninsular India, and had been dubbed as the Dakshin Ganga (Ganges of the South).

THOUGH SOME SOURCES ALSO MEANTIONS THAT- The Godavari basin is bounded on the north by the Satmala hills, on the south by the Ajanta range and the Mahadeo hills, on the east by the Eastern Ghats and on the west by the Western Ghats. Through this link, you can view certain sources as well.

(https://indiawris.gov.in/wiki/doku.php?id=godavari#: ``:text=The %20 Godavari%20 basin%20 is %20 bounded, west %20 by %20 the %20 Western%20 Ghats)

B-26 The Correct Answer is: c) 1 &3 only

Explanation: 1. It is the largest river in Peninsular India.

- 2. It is bounded by Balaghat Hills on the south and Satmala Hills on the north.
- 3. Tropic of Cancer cuts none of its tributaries (Refer Map).

B-27 The Correct Answer is: c) Both 1 and 2

Explanation: 1. The river is also known as Dakshin Ganga and Gautami.

2. Source of Godavari lies in Western Ghats and it merges into Bay of Bengal by cutting through Eastern Ghats. Hence, it cuts both Western and Eastern Ghats.



B-28 The Correct Answer is: a) 1, 2 & 3 only

Explanation: Its left bank tributaries are more in number and larger in size than the right bank tributaries.

Important Left Bank Tributaries of Godaveri are: Purna, Sabari, Indravati, Pranahita (conveying the combined waters of Penganga, the Wardha and Wainganga), etc. Important Right Bank Tributaries of Godaveri are: Pravara, Manjira, , Manair, Kinnerasani River etc.

The Amaravati River is the longest tributary of Kaveri River in the fertile districts of Karur and Tirupur, Tamil Nadu state.

B-29 The Correct Answer is: a) 1 only

Explanation: 1. Coringa Mangrove Forests, which are second largest Mangrove formation in the country, lie on Godavari delta.

2. Pranhita, the largest tributary of Godavari, comes into existence due to the confluence of Penganga, Wardha and Wainganga.

B-30 The Correct Answer is: c) Both 1 & 2

Explanation: The Krishna River is the fourth-biggest river in terms of water inflows and river basin area in India, after the Ganga, Godavari and Brahmaputra. And It is the second biggest river in peninsular India after Godavari River. The Krishna river originates in the Western Ghats near Mahabaleshwar at an elevation of about 1,300 metres (4,300 ft), in the state of Maharashtra in central India. It runs from four states Maharashtra (303 km), North Karnataka (480 km) and the rest of its 1300 km journey in Telangana and Andhra Pradesh before it empties into the Bay of Bengal at Hamasaladeevi (near Koduru) in Andhra Pradesh, on the east coast.

- 1. Krishna flows through four states (Maharashtra, Karnataka, Telangana and Andhra Pradesh).
- 2. Krishna and Mahanadi have no common states which they cross during their course of flow (Refer Map).

B-31 The Correct Answer is: a) Bhima

Explanation: The Krishna is the second largest east flowing river of the Peninsula. The Krishna river's source is at Mahabaleshwar near the Jor village of Satara district of Maharashtra and empties into the Bay of Bengal at Hamasaladecvi (near Koduru) in Andhra Pradesh

Major Tributaries of Krishna River are as follows

Important Right bank Tributaries are: Koyna, Panchganga, Dudhganga, Ghataprabha, Malaprabha, Tungabhadra.

Important Left Bank Tributaries are: Don, Bhima, Dindi, Musi, Munneru.



B-32 The Correct Answer is: d) All of the above

Explanation: Rivers Source

1. Bhima : Near Bhimashankar Temple

2. Tungabhadra : Koodli (The place where the Thunga and Bhadra rivers meet)

3. Musi : Anantagiri Hills in Telangana (not in Western Ghats)

B-33 The Correct Answer is: b) 2 only

Explanation: 1. Krishna (~1400 Km) is larger than Yamuna (~1380 Km) but smaller than Godavari (~1470 Km).

2. Krishna and Koyna rivers originate at Mahabaleshwar.

The Two sisters flow in opposite directions. In Karad they meet head on. Hence this confluence is unique and named Preetisangam (confluence of love). This sangam is very rare in world where two rivers come from front and take a turn and become one river.

B-34 The Correct Answer is: d) All of the above

B-35 The Correct Answer is: b) 2 only

Explanation: The Kaveri (or Cauvery in English) is a large Indian river. The Kaveri river rises at Talakaveri in the Brahmagiri range in the Western Ghats, Kodagu district of the state of Karnataka. It flows generally southeast direction for 765 km through Karnataka and Tamil Nadu and across the southern Deccan plateau through the southeastern lowlands, drain into the Bay of Bengal through two principal mouths in Poompuhar, Tamil Nadu. It is the third largest river – after Godavari and Krishna – in South India and the largest in the State of Tamil Nadu

The Kaveri basin is estimated to be 81,155 square kilometres (31,334 sq miles) with many tributaries including the Shimsha, Hemavati, Arkavati, Lakshmana Tirtha, Kabini, Bhavani River, Noyyal and the Amaravati River. Though this river flows in the Karnataka and Tamil Nadu, its 3% basin is also in Kerala.

- $1. \, Kaveri\, doesn't\, flow\, through\, Kerala.\, Although\, some\, of\, its\, tributaries\, flow\, through\, some\, of\, its\, tributaries\, flow\, some\, of\, its\, tributaries\, flow, flow$
- 2. It drains into Bay of Bengal at the Coromandel coast (Tamil Nadu).

B-36 The Correct Answer is: d) All of the above

Explanation: Kaveri flows in Karnataka and Tamil Nadu. The river covers a distance of about 765 km and flows through the state of Karnataka and Tamil Nadu. On its journey to the Bay of Bengal, the river is joined by its tributaries.

Important Left Bank tributaries are: Hemavati, Shimsha and Arkavati.

Important Right Bank tributaries are: Lakshmantirtha, Kabini, Bhavani, Noyyal and the Amaravati joins from right.



B-37 The Correct Answer is: b) 2 only

Explanation: 1. The river basin covers three states and a Union Territory as follows: Tamil Nadu, 43,868 square kilometres (16,938 sq mi); Karnataka, 34,273 square kilometres (13,233 sq mi); Kerala, 2,866 square kilometres (1,107 sq mi), and Puducherry, 148 square kilometres (57 sq mi).

2. Kaveri doesn't dry up completely in the winter season. The word "completely" is extreme. So, the statement is incorrect.

B-38 The Correct Answer is: a) Mahanadi, Godavari, Krishna, Pennar, Kaveri and Vaigai

Explanation: We already have discussed Mahanadi, Godaveri, and Krishna River. Lets now discuss few more imporgtant river of the southern India

Pennar (also known as Penna, Penner, Penneru, and Uttara Pinakini) is a river of southern India. The Penna rises in the Nandi Hills in Chikkaballapur District of Karnataka state, and runs north and east through the states of Karnataka and Andhra Pradesh to empty into the Bay of Bengal. It is 597 kilometres (371 mi) long, with a drainage basin covering 55,213 km2: 6,937 km2 in Karnataka and 48,276 km2 in Andhra Pradesh. The river basin lies in the rain shadow region of Eastern Ghats.

Ponnaiyar: also known as The South Pennar River or Dakshina Pinakini in Kannada and Thenpennai or Ponnaiyar or Pennaiyar in Tamil, Outskirts of Bangalore, Tiruvannamalai, Cuddalore are the important cities on the banks of South Pennar river. The river originates in the Nandi Hills in the Chikkaballapura district of Karnataka and flows through Tamil Nadu before emptying into the Bay of Bengal. It has a catchment area of 1,424 square miles (3,690 km2) located in Karnataka and Tamil Nadu states.

Vaigai: The Vaigai River is a river that starts flowing from Varusanadu Hills, Periyar plateau of the Western Ghats range. This river flows east towards Tamil Nadu. The Vaigai river produces the Vattaparai Falls. The city of Madurai lies on the banks of this river. The river empties into the Palk strait in the Ramanathapuram district of Tamil Nadu.

The correct sequence of the eastward flowing rivers of peninsular India from north to south is Mahanadi, Godavari, Krishna, Pennar, Cauvery and Vaigai.

B-39 The Correct Answer is: b) Chile

Explanation: The River Amazon in South America is the largest river by discharge of water in the world, and the second in length. The river originates from the Andes mountains in the Peru. It runs through Ecuador, Venezuela, Bolivia, Brazil, Colombia and Peru. The length of the Amazon River is approximately 6400 kilometres (4000 miles). The Amazon River is the second longest river in the world, slightly shorter than the Nile River (4,258 miles or 6,853 km), although some experts contend that the two rivers are so close in length (since measuring methods vary and there is still some dispute over their true sources) that it is difficult to say which river is actually longer.

B-40 The Correct Answer is: c) Over 1,000

Explanation: The Amazon River has over 1,000 tributaries such as Branco, Xingu, and Ucayali Rivers. Some of these rivers are more than 900 miles long and form part of the world's largest drainage basin.



B-41 The Correct Answer is: a) True

Explanation: The Amazon River and its tributaries cover about 30% of South America. It covers about an area of 2,720,000 square miles

B-42 The Correct Answer is: a) True

Explanation: The Amazon River is the second longest river in the world. It is about 4,000 miles long. However, the Mississippi River is about 2,320 miles long which is much shorter than the Amazon River.

B-43 The Correct Answer is: a) 1 only

Explanation: The Nile has two major tributaries – the White Nile and the Blue Nile. The White Nile is considered to be the headwaters and primary stream of the Nile itself. The Blue Nile, however, is the source of most of the water and silt. The White Nile is longer and rises in the Great Lakes region of central Africa, with the most distant source still undetermined but located in either Rwanda or Burundi. It flows north through Tanzania, Lake Victoria, Uganda and South Sudan. The Blue Nile begins at Lake Tana in Ethiopia and flows into Sudan from the southeast. The two rivers meet just north of the Sudanese capital of Khartoum.

The Nile is a major north-flowing river in north-eastern Africa, and is the longest river in Africa and the disputed longest river in the world. The Nile, which is about 6,650 km (4,130 mi) long, is an "international" river as its drainage basin covers eleven countries: Tanzania, Uganda, Rwanda, Burundi, the Democratic Republic of the Congo, Kenya, Ethiopia, Eritrea, South Sudan, Republic of the Sudan, and Egypt. In particular, the Nile is the primary water source of Egypt and Sudan.

The Grand Renaissance Dam, formerly known as the Millennium Dam is a gravity dam on the Blue Nile River in Ethiopia that has been under construction since 2011.

B-44 The Correct Answer is: b) Russia

Explanation: Volga River is the longest river in Europe. The river is 3,692 kilometres (2,294 miles) long and is located entirely in Russia. It is also Europe's largest river in terms of discharge and watershed. The Volga river drains most of the western region of Russia. From its source in the Valdai Hills north east of Moscow the river flows east and south east to the Caspian Sea.

B-45 The Correct Answer is: d) Valdai Hills

Explanation: From its source in the Valdai Hills north east of Moscow the river flows east and south east to the Caspian Sea. The Volga is the main waterway in this great nation. Its importance to the Russian people stretches far back into the mists of time, leading to this river being given the affectionate title "Mother Volga".

B-46 The Correct Answer is: d) Caspian Sea



B-47 The Correct Answer is: b) 1 & 2 only

Explanation: The Danube is one of the world's greatest rivers. It is the second longest river in Europe after the Volga River, and also the longest river in the European Union region. It is located in Central and Eastern Europe. The Danube flows through 10 countries.

Originating in Germany, (conventionally taken to be formed by the confluence of the two streams Brigach and Breg just east of Donaueschingen (German town in the Black Forest).) the Danube flows southeast for 2,860 kilometers (1,780 miles), passing through or touching the border of Austria, Slovakia, Hungary, Croatia, Serbia, Romania, Bulgaria, Moldova and Ukraine before emptying into the Black Sea.

B-48 The Correct Answer is: b) South to northeast - west to northwest

Explanation: The Rhine River is the second-longest river in Central and Western Europe after the Danube and originates in the Swiss Alps (in Switzerland). The Rhine river is called by different names depending on the country it flows through. It is called Rhein in Germany; Rhine in France and Rijn in the Netherlands. The Rhine flows through six countries -Switzerland, Principality of Liechtenstein, Austria, Germany, France and the Netherlands before flowing into the North Sea at Rotterdam.

B-49 The Correct Answer is: d) The North Sea

B-50 The Correct Answer is: b) Rhine

B-51 The Correct Answer is: c) 1 & 3 only

Explanation: The Mississippi River is one of the world's major river systems in size, habitat diversity and biological productivity. The Mississippi River lies entirely within the United States. The Mississippi River flows from its source at Lake Itasca through the center of the continental United States to the Gulf of Mexico. The Mississippi River lies in the following 10 US states: Minnesota, Wisconsin, Iowa, Illinois, Missouri, Kentucky, Tennessee, Arkansas, Mississippi, and Louisiana. The length of the Mississippi River is approximately 3,730 kilometers (2,320 miles), slightly shorter than the Missouri River. The river forms a bird-foot delta as it empties into the Gulf of Mexico. As the name suggest this delta is in the shape of a bird's foot and tend to have one or a very few major distributaries near their mouths.

B-52 The Correct Answer is: d) Neither 1 nor 2

Explanation: The Mekong, is a trans-boundary river in East Asia. The Mekong begins on the Tibetan Plateau and runs for more than 2,600 miles through China, Myanmar, Thailand, Laos, Cambodia, and Vietnam before emptying into the South China Sea. It's the longest river in Southeast Asia, the third longest in Asia., and—most important for the people who live along it—the world's most productive inland fishery. But The extreme seasonal variations in flow and the presence of rapids and waterfalls in the Mekong make navigation difficult. Even so, the river is a major trade route between western China and Southeast Asia.



B-53 The Correct Answer is: d) Turkey

Explanation: Originating in Lake Hazer in Turkey—a region characterized by high mountains—the river flows parallel with the Euphrates River. The two eventually join, emptying into the Persian Gulf in the lowlands in an area known as the Shatt Al-Arab. More than half of the Tigris can be found in Iraq.

B-54 The Correct Answer is: d) Euphrates

Explanation: The Euphrates is the longest and one of the most historically important rivers of Western Asia. Together with the Tigris, it is one of the two defining rivers of Mesopotamia (the "Land between the Rivers"). Originating in the Armenian Highlands of eastern Turkey, the Euphrates flows through Syria and Iraq to join the Tigris in the Shatt al-Arab, which empties into the Persian Gulf.

B-55 The Correct Answer is: d) Australia

Explanation: The Murray River is a river in south-eastern Australia. It is Australia's longest river at 2,508 km (1,558 mi) in length. The Murray River forms part of the 3,750 km (2,330 mi) long combined Murray—Darling river system which drains most of inland Victoria, New South Wales, and southern Queensland. Overall the catchment area is one-seventh of Australia's total land mass.

B-56 The Correct Answer is: c) New South Wales and Victoria

Explanation: The Murray River rises in the Australian Alps, draining the western side of Australia's highest mountains, and then meanders north westly across Australia's inland plains, forming the border between the states of New South Wales and Victoria as it flows into South Australia.

B-57 The Correct Answer is: d) Rhone: Spain

Explanation: The Po is a river that flows 652 kilometres (405 miles) eastward across northern Italy, from Monviso (in the Cottian Alps) to the Adriatic Sea near Venice. It has a drainage area of 71,000 km² and is the longest river in Italy

The Rhine as we already have that Rhine originates in the Swiss Alps (in Switzerland) and flows through six countries -Switzerland, Principality of Liechtenstein, Austria, Germany, France and the Netherlands before flowing into the North Sea at Rotterdam. (Refer the question 48 to 50)

The Dnieper rises at an elevation of about 720 feet (220 metres) in a small peat bog on the southern slope of the Valdai Hills of Russia, about 150 miles (240 km) west of Moscow, and flows in a generally southerly direction through western Russia, Belarus, and Ukraine to the Black Sea.

The Rhône is one of the major rivers of Europe, it originates in Switzerland, from the Rhône Glacier in the Swiss Alps. It first flows generally to the northwest into Lake Geneva, then exits the lake and meanders to the southwest from Switzerland into France, then flows south through south-eastern France to the Mediterranean Sea. Near its mouth, at the city of Arles in Provence.



B-58 The Correct Answer is: c) Dnieper

Explanation: While Kharkiv is a city located close to the border Ukraine shares with Russia, the Dnieper is the longest river in Ukraine, and the mouth of the river in the Black Sea, near the town of Odessa.

Significance: The dredging of the Pripyat river that flows near the site of the infamous nuclear accident at Chernobyl, could wreak havoc on an estimated 28 million people in Ukraine, the World-Wide Fund (WWF) for Nature has warned.

B-59 The Correct Answer is: c) Chernobyl (Chornobyl')

Explanation: Chernobyl is located on the Prypyats river, which is also known as the River Pripet. Shortly after Chernobyl, the river Prypyats meets the river Desna and they both become the Dnieper.

B-60 The Correct Answer is: a) Lithuania

Explanation: Ukraine is bordered by Russia to the east and northeast, Belarus to the northwest, Poland and Slovakia to the west, Hungary, Romania, and Moldova to the southwest, and the Black Sea and Sea of Azov to the south and southeast, respectively.

B-61 The Correct Answer is: d) 1986

Explanation: On April 26, 1986, a blast occurred at the No.4 reactor in the Chernobyl Nuclear Power Plant, near Pripyat city in the then Soviet Ukraine. The Pripyat river passes through the exclusion zone established around the site. The city of Pripyat, with a population of 45,000, was completely evacuated after the Chernobyl disaster and is now a ghost town.

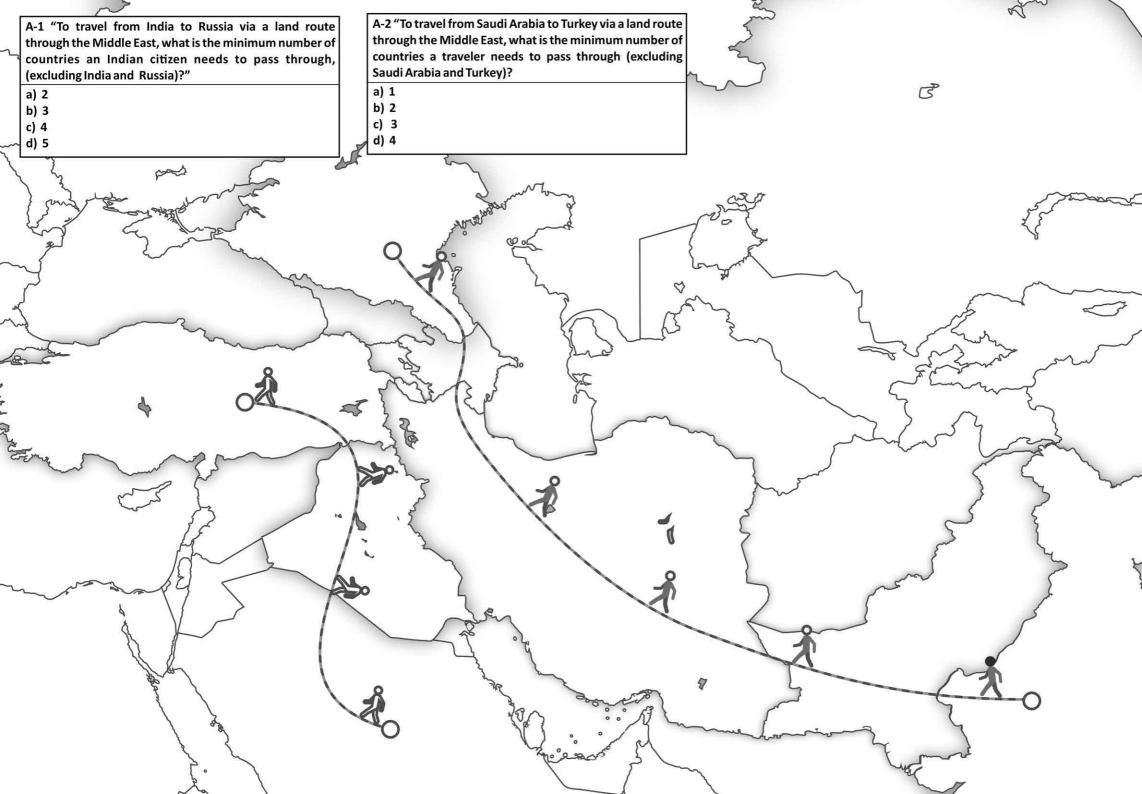
The dredging of the Pripyat river that began recently, is being done at eight locations, four of which lie barely a few kilometres from the remains of reactor No.4.

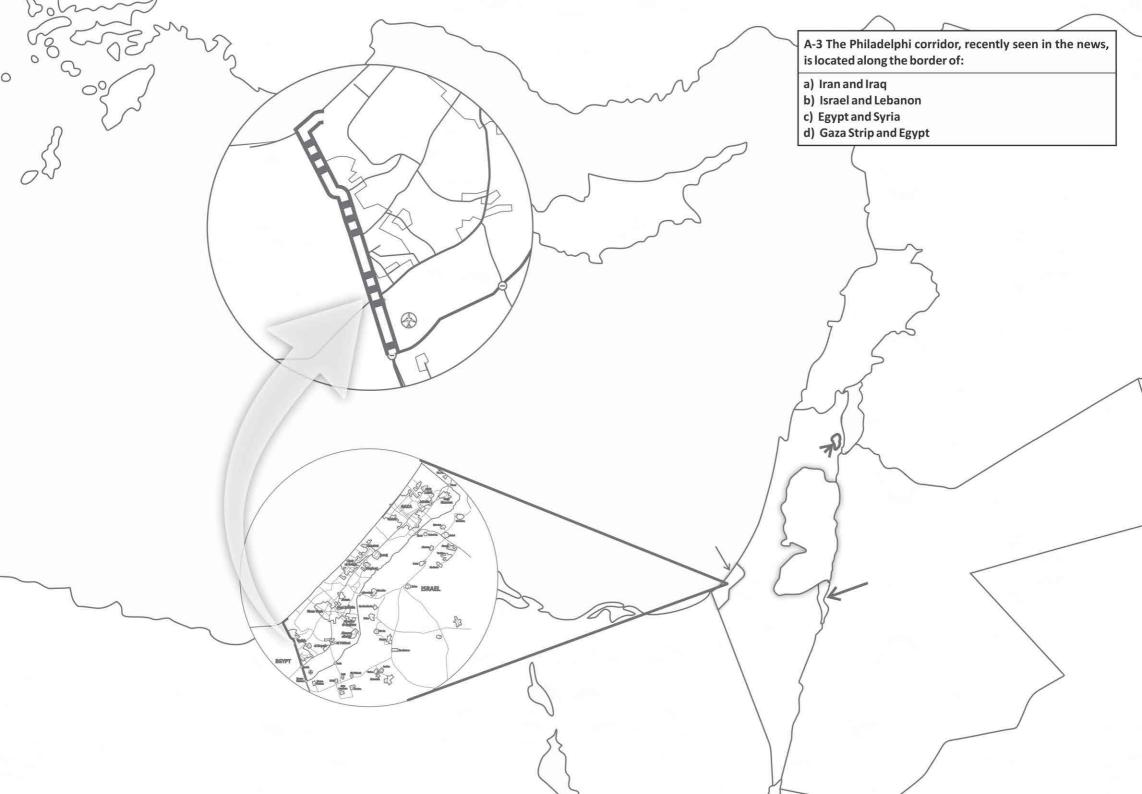
Some 28 million people downstream who depend on the Dnieper river for water and food, could be at increased radiation risk if dredging in the Chernobyl exclusion zone continues, a statement by the WWF said, citing an independent scientific study by the French organisation ACRO.

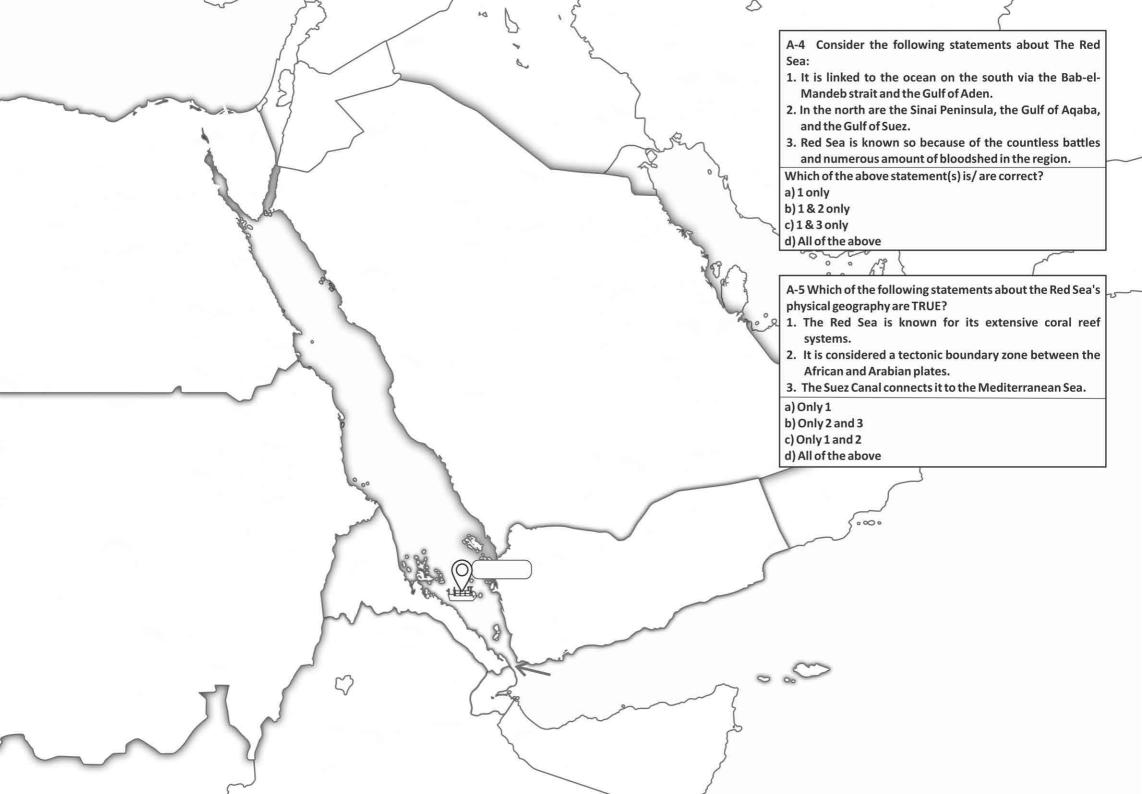
The Pripyat river is being dredged as part of the restoration of a bilateral waterway between Ukraine and Belarus and is being seen as the first step of the much larger E40 project.

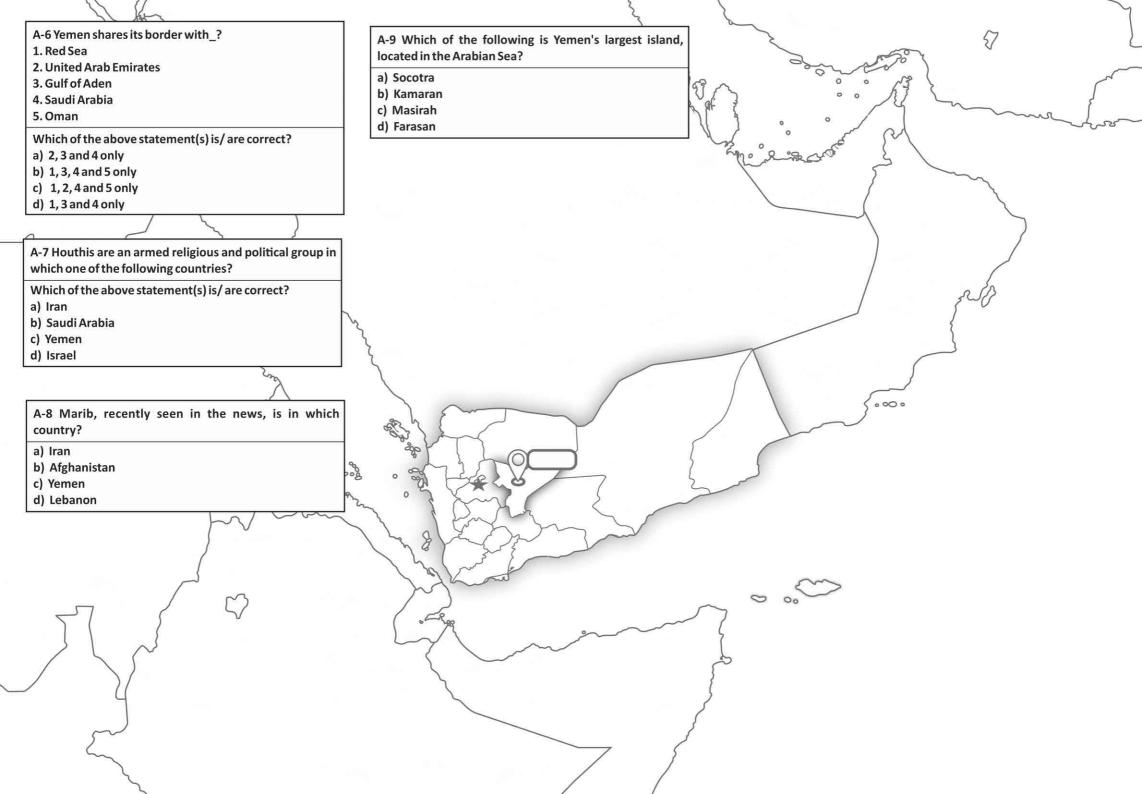
B-62 The Correct Answer is: b) The city of Khartoum

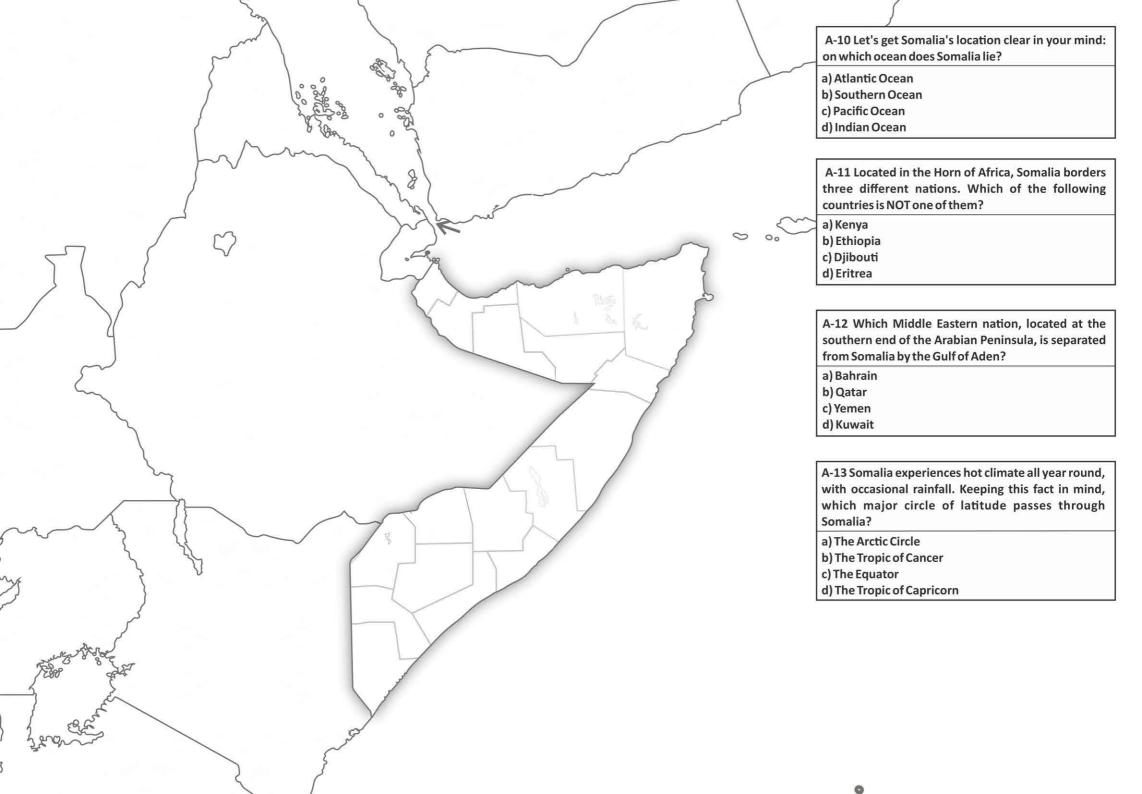
Explanation: The Blue Nile and the White Nile are the major tributaries of the Nile proper. From their convergence at Khartoum, the Nile continues northward to the Mediterranean. The White Nile and then the combined Nile run the full length south-to-north of Sudan. The White Nile enters Sudan from Uganda via South Sudan on the south, and the Blue Nile enters from Ethiopia in the east. The river exits Sudan in the north, flowing into Egypt. The Nile's drainage basin is enormous, covering most of the Sudan and South Sudan and, dramatically, about 10 percent of the entire land area of Africa. Khartoum was founded in 1821 as a commercial outpost and grew to become the capital of Sudan. Incidentally, there is a debate about whether the Nile or the Amazon is the longest river in the world.

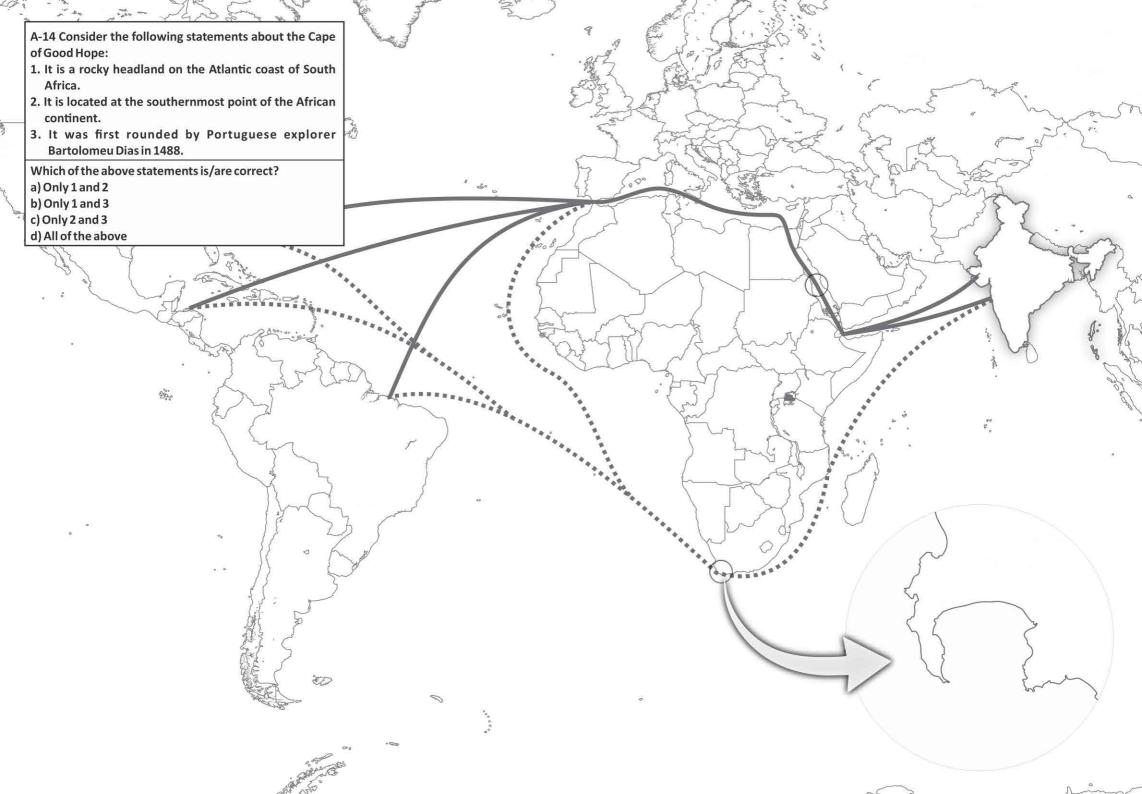


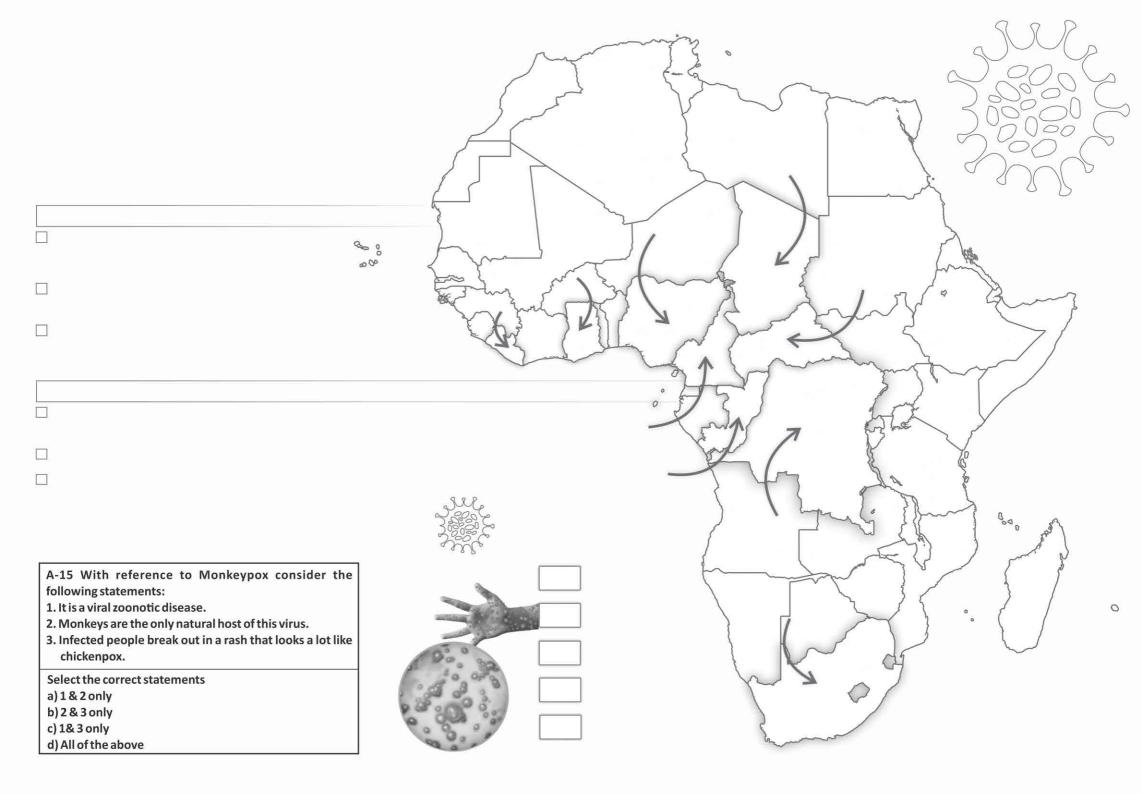


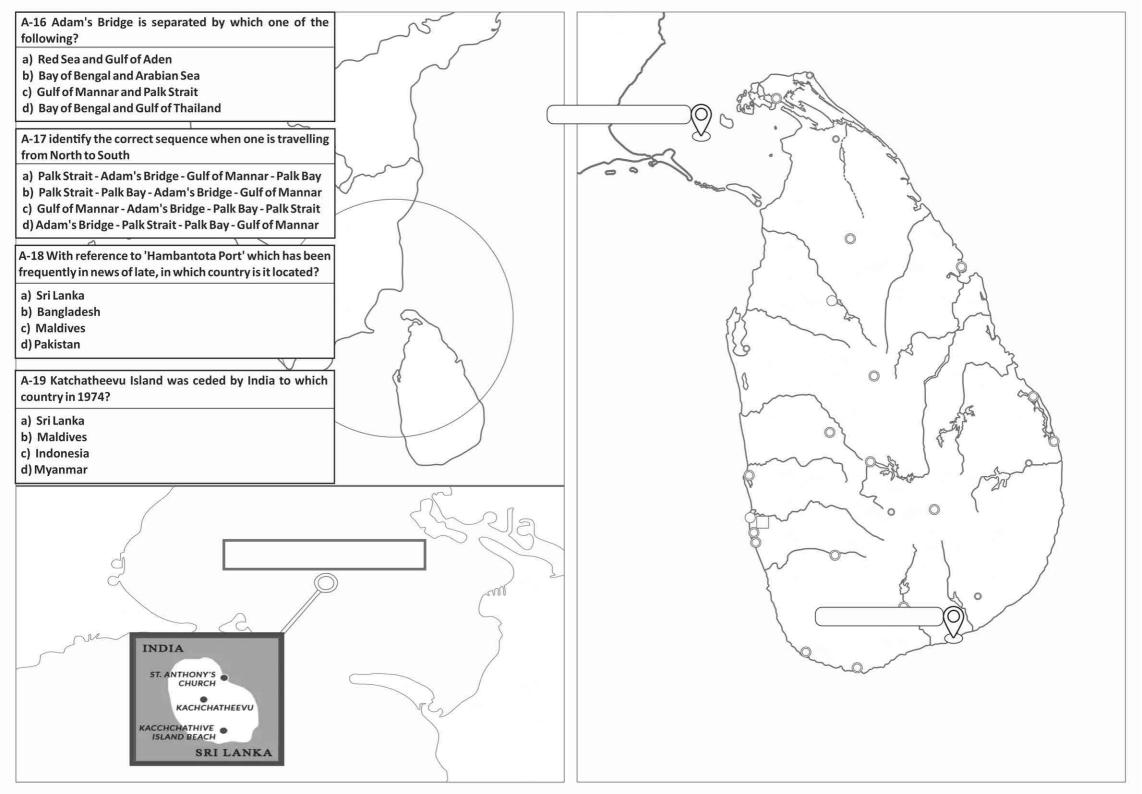


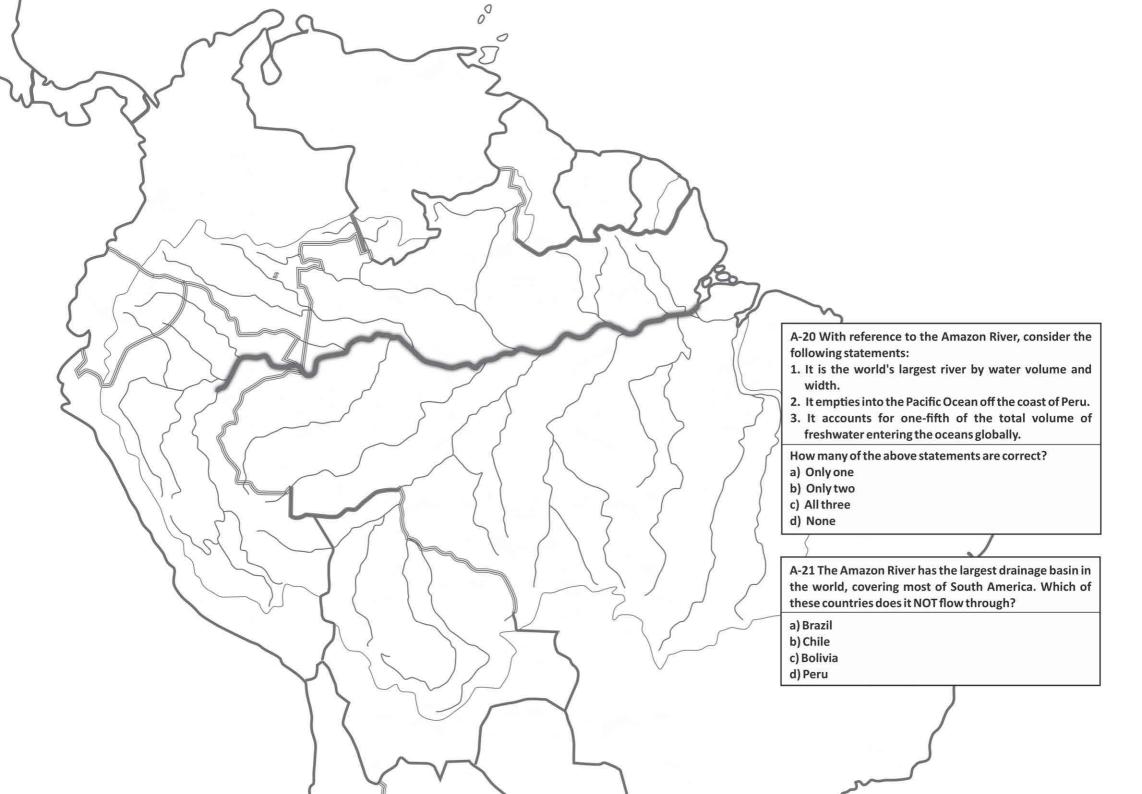


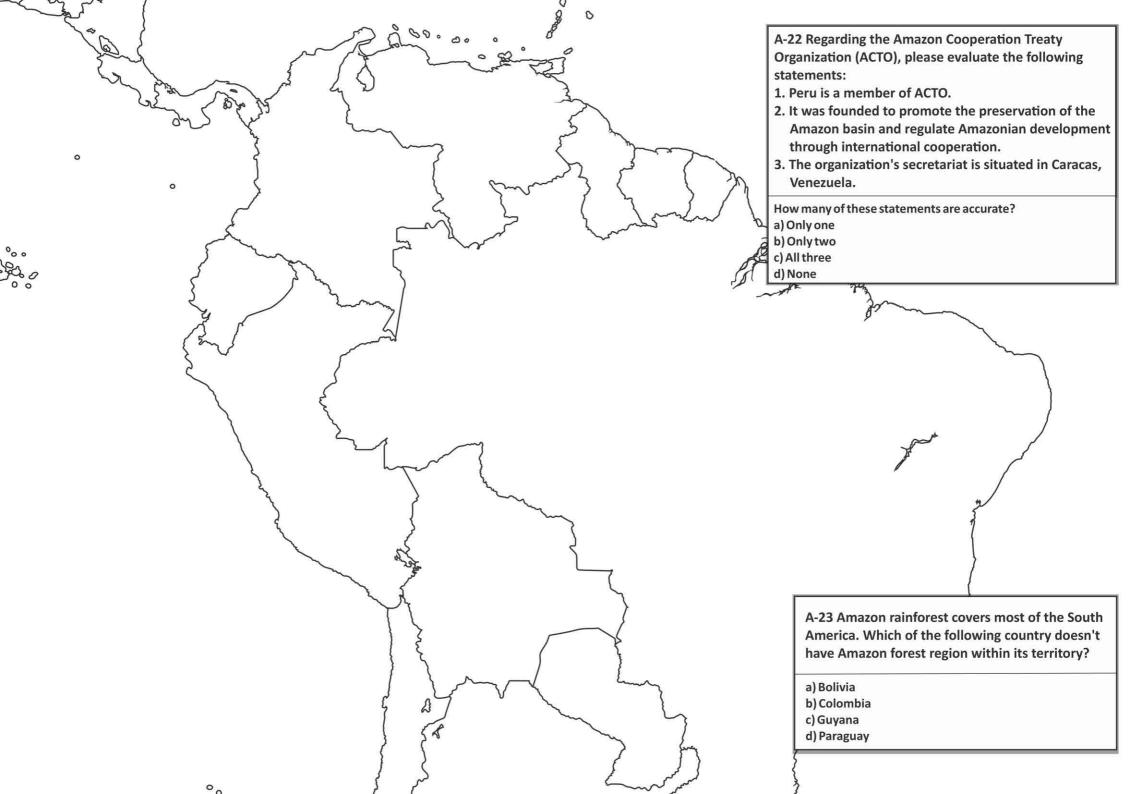


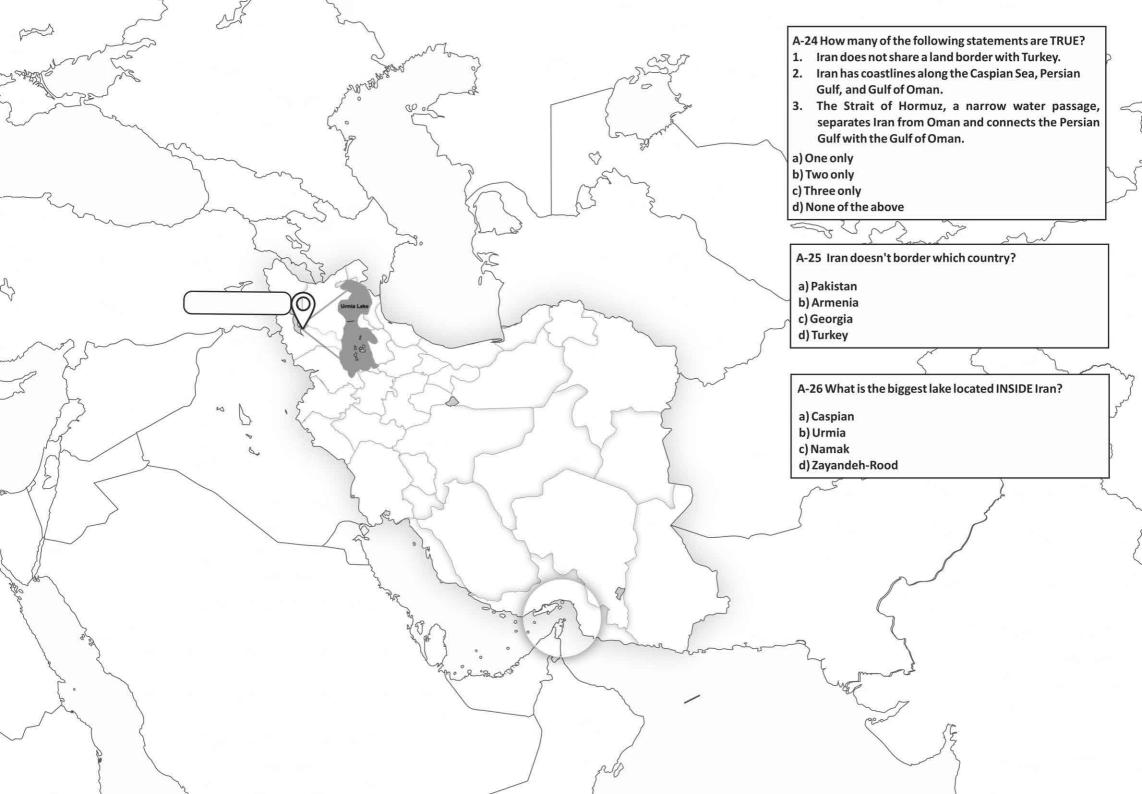


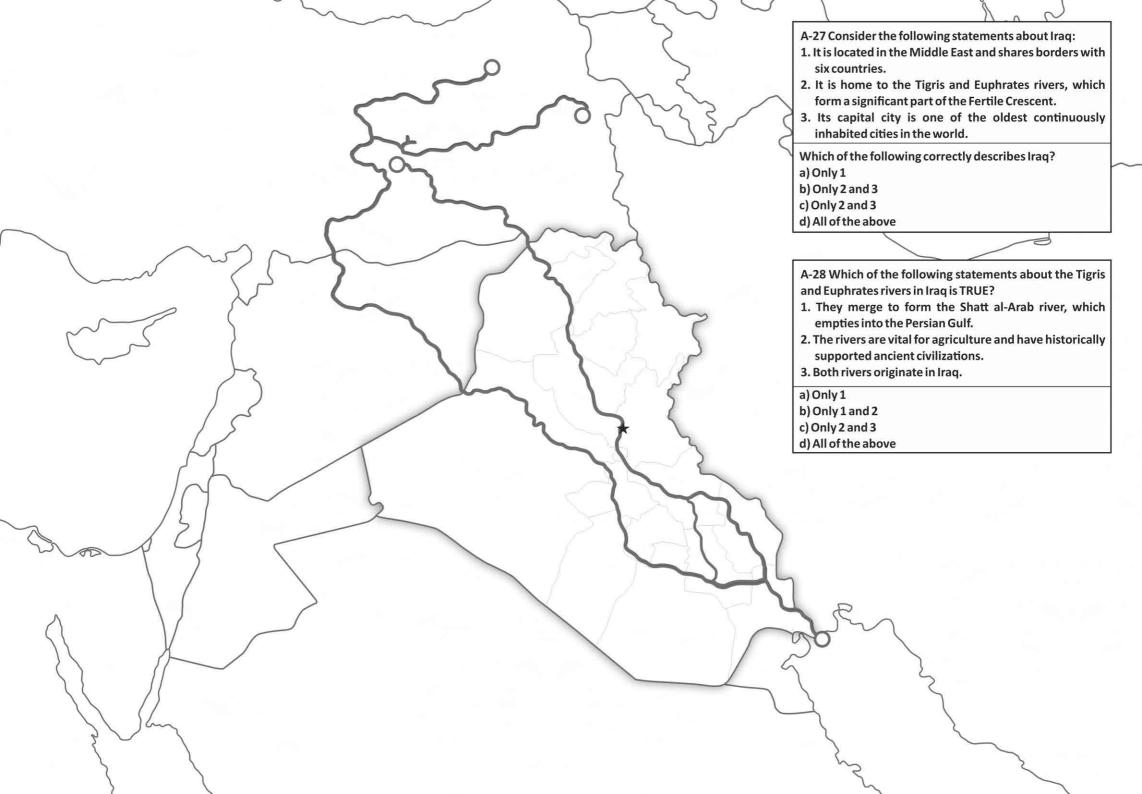


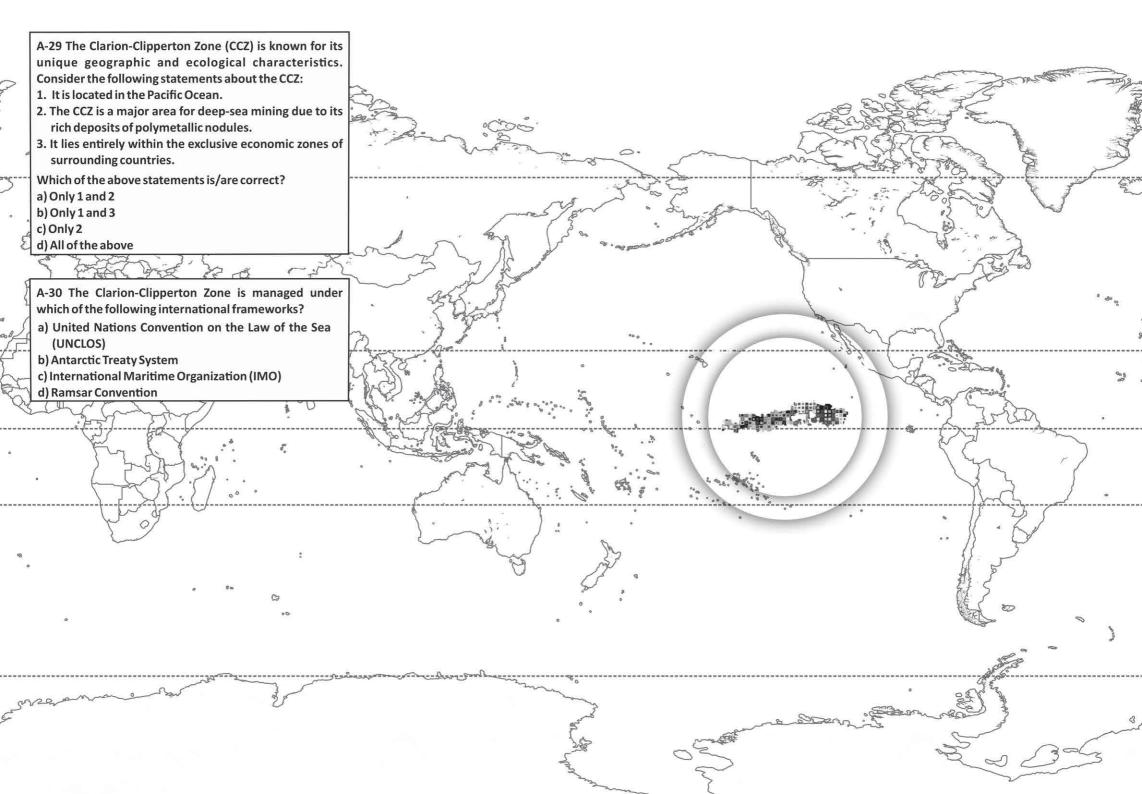


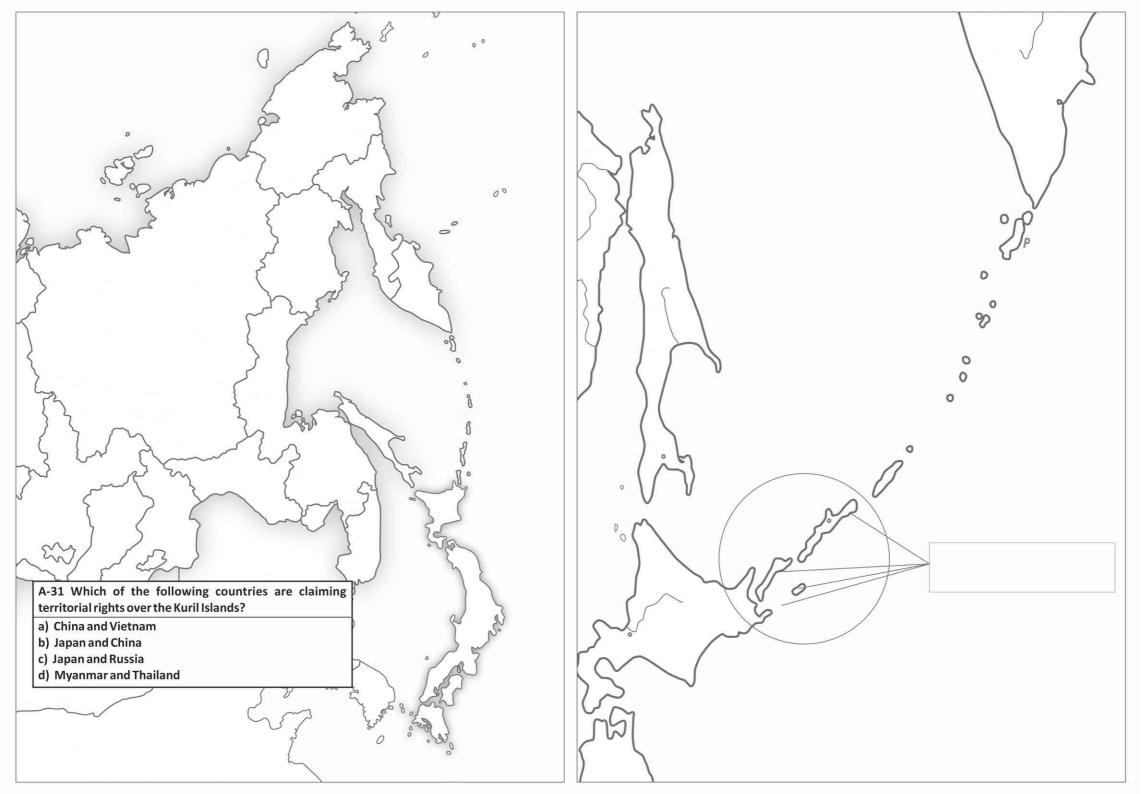


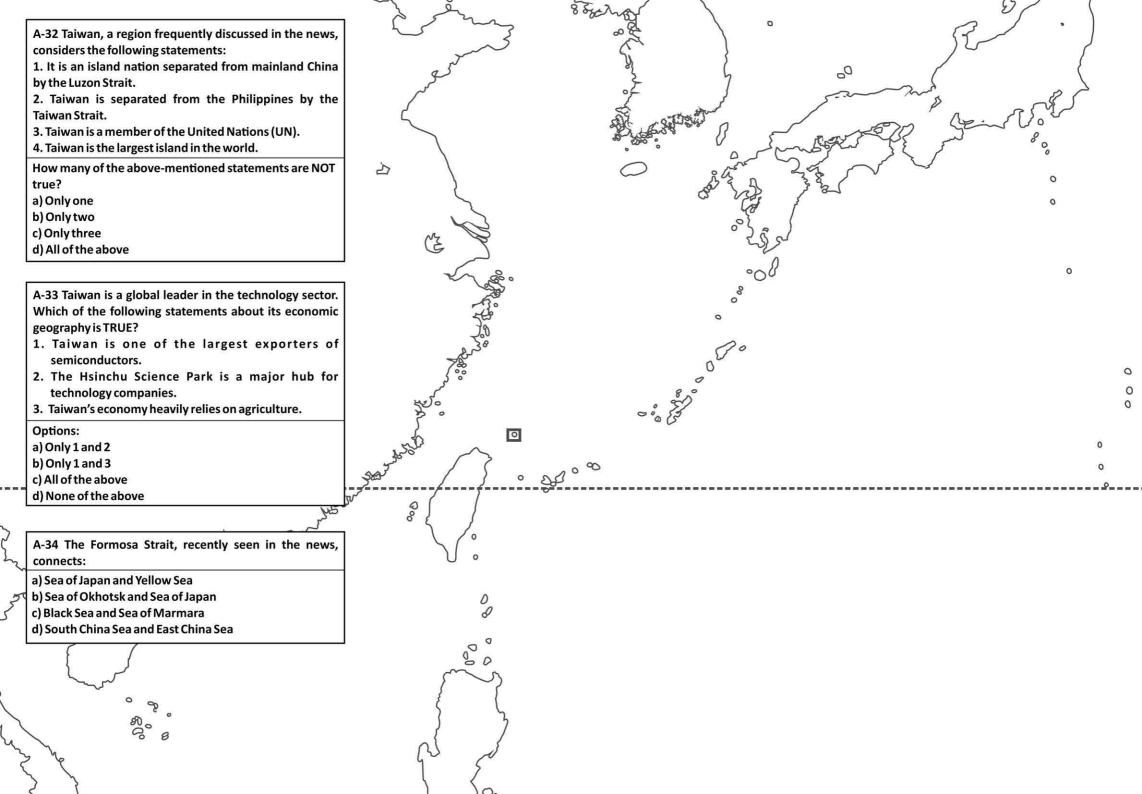


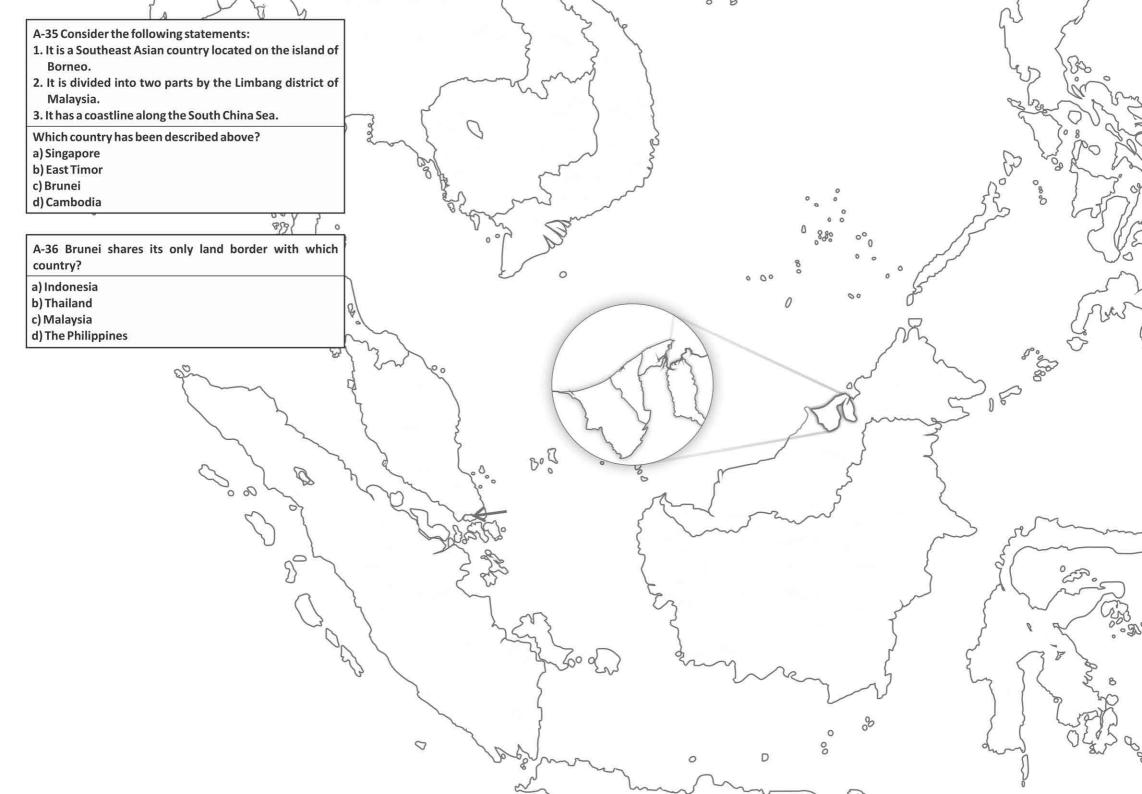


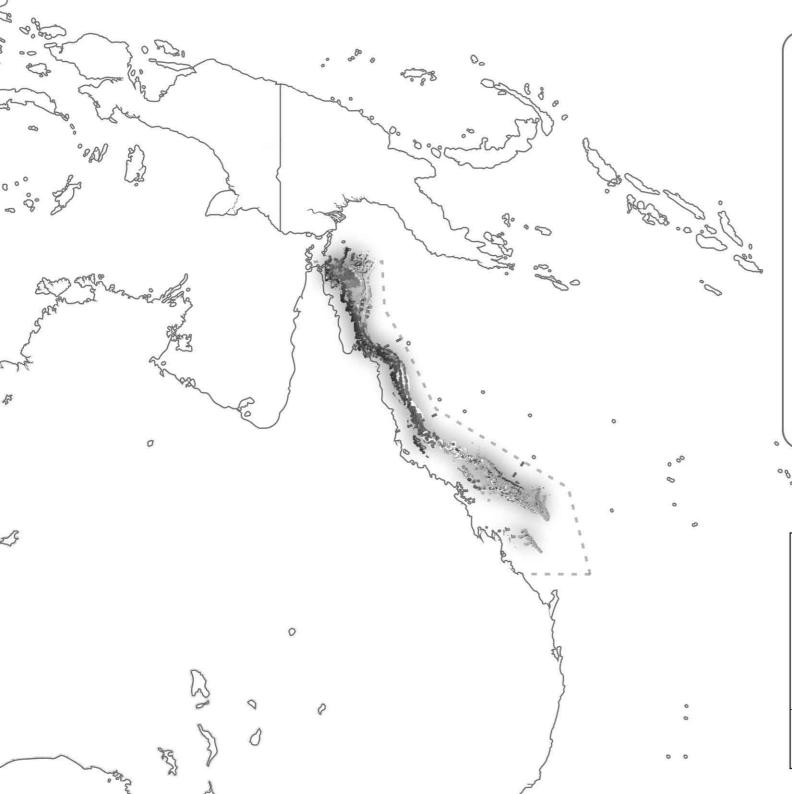












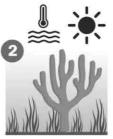
How a coral becomes bleached







Coral requires algae to survive — it's both coral's primary food source and what makes it colorful.







Rising ocean temperatures and overexposure to sunlight stress coral and cause algae to abandon it. 0





BLEACHED

With the algae gone, the coral turns white and is more susceptible to disease and death.

A-37 With reference to the Great Barrier Reef, consider the following statements:

- The Great Barrier Reef is the world's largest coral reef system.
- 2. The reef is located in the Coral Sea, off the coast of Queensland, Australia.
- Bleaching occurs when healthy corals become stressed by changes in ocean temperatures, causing them to expel algae living in their tissues which drains them of their vibrant colours.

Which of the above statement(s) is/are correct?

a) 1 only

b) 1 & 2 only

c) 1 & 3 only

d) All of the above

